CASSETTE RECEIVER WITH GE & CD PLAYER

RXD-25/25L

SERVICE MANUAL

KENWOOD

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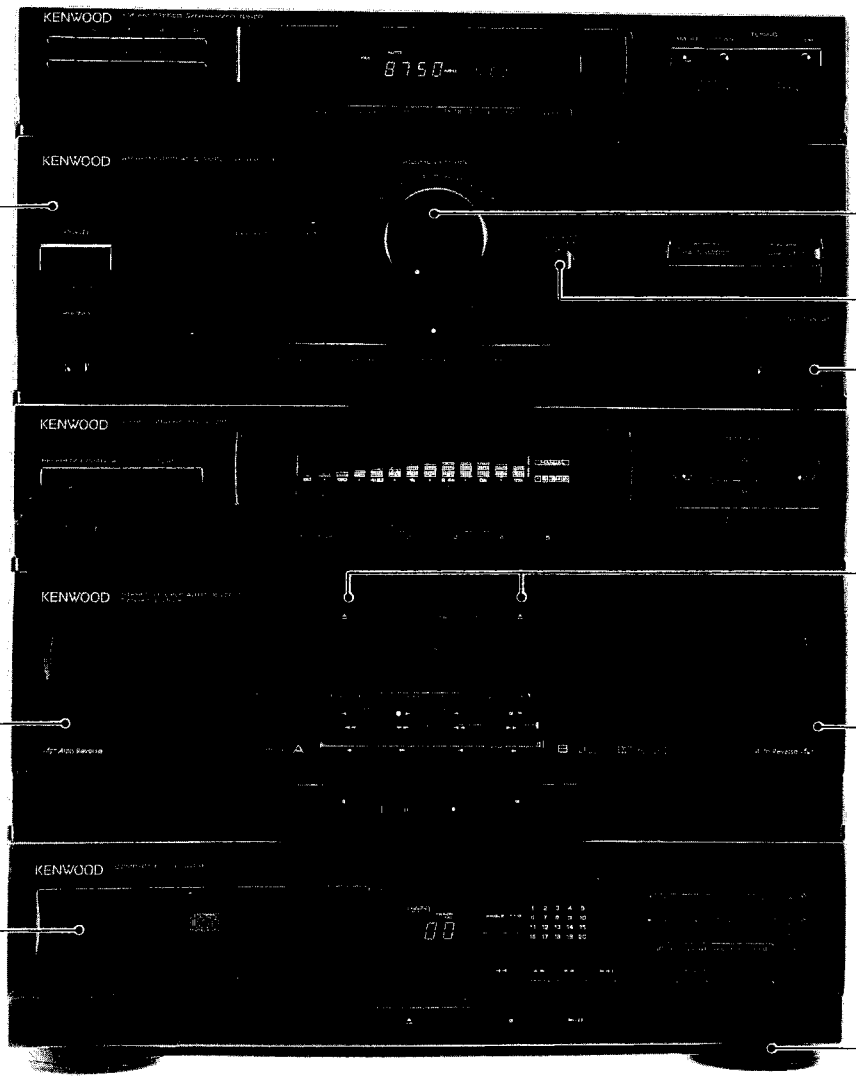

Refer to the FEATURES AND SERVICING NOTES on page 2 before repair.

*** Refer to parts list on page 131.**

RXD-25/25L

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FEATURES AND SERVICING NOTES

The features of and servicing notes for the MIDI system are described below.

(1) The tuner, amplifier, GE, decks, and CD blocks are integrated, so pay attention to the following wiring layout of the decks and CD blocks:
   (a) Separate the 6-wire cable of connector CN7 (+B) and WH1 on the CD board (X32-).
   (b) Separate the wires for connector CN2 from the wires for connector CN3 on the CD board (X32-) in accordance with the first wiring partern.

(2) To listen to a test selector other than the deck and CD blocks using a timer, remove the cassette tape and CD disk.

(3) A TIMER PLAY key is not provided on the deck block. The TIMER PLAY mode can be entered when the TIME REC LED indicator is not on.

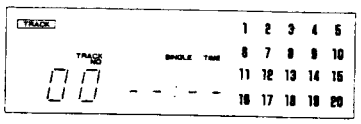
(4) The microprocessor is powered only if it is connected to an AC outlet. When soldering and replacing parts, disconnect the power cord from the outlet.

(5) The CD mechanism has no transport screw. During unit transport or movement, return the mechanism to the initial setting before switching the power OFF.

Note related to transportation and movement

When this unit is to be transported or shifted, carry out the following procedure. (for protection of the internal mechanism)

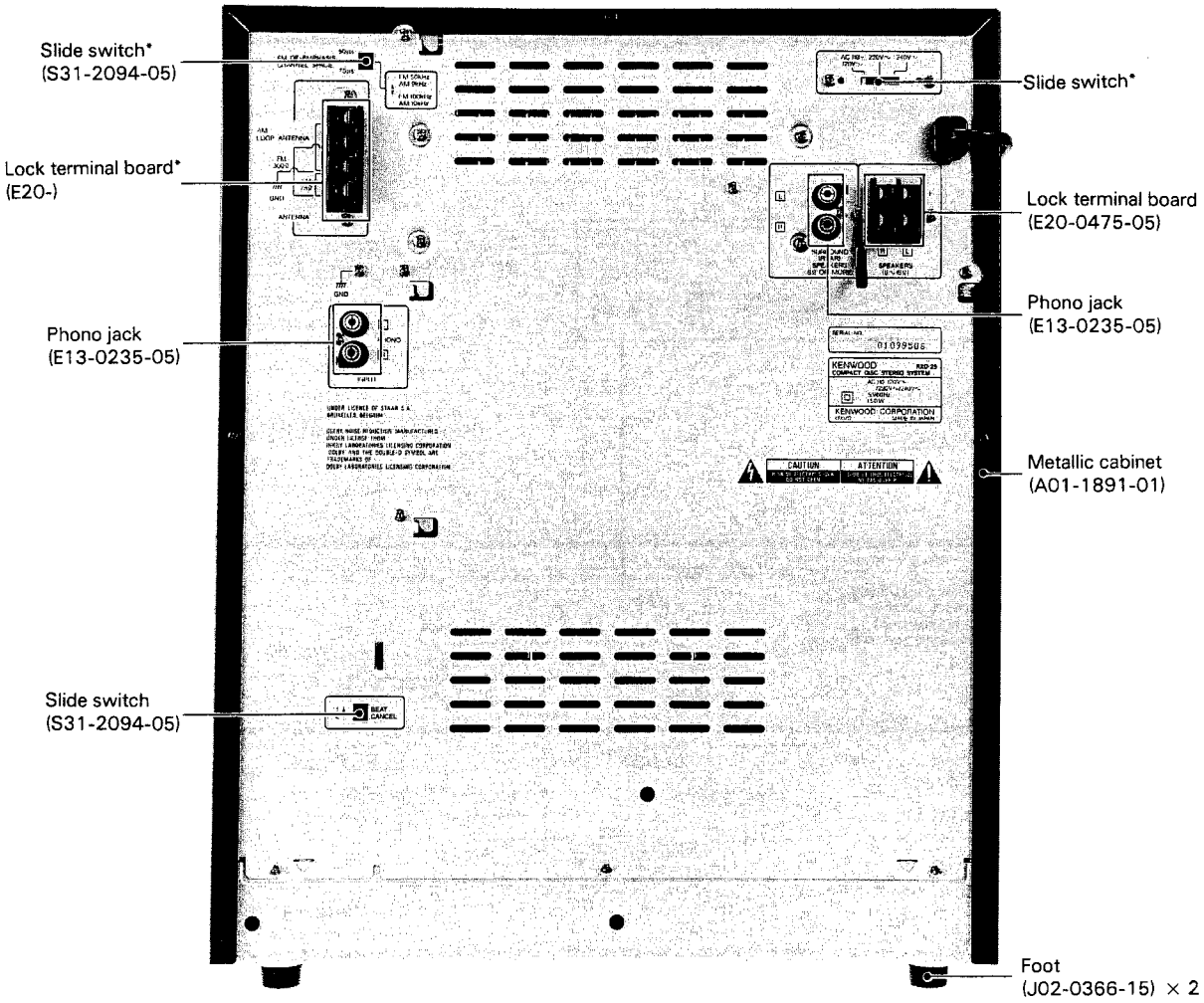
1. **Turn the power ON without putting a disc in the unit.**
2. **Wait several seconds, and check that the display shown below appears.**



3. **Turn the power OFF.**

(6) Recording on metal tapes cannot be carried out.

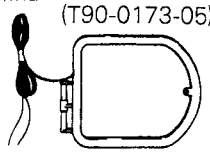
REAR PANEL



* Refer to parts list on page 131.

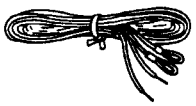
Accessories

- AM (MW, LW) loop antenna ... 1
  (T90-0173-05)

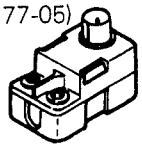


- Loop antenna stand ... 1
  (J19-2815-04)

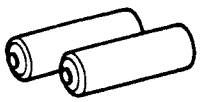
- FM indoor antenna ... 1
  (T90-0176-05)



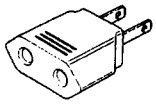
- Antenna adaptor
  (75 Ω/300 Ω) ... 1
  (M-25 only)
  (T90-0177-05)



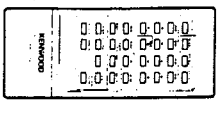
- Batteries (R06/AA) ... 2



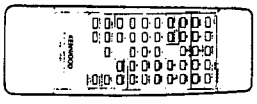
- AC plug adaptor ... 1
  (Except for some areas)
  (E03-0115-05)



- Remote control unit ... 1
  For M-25
  (A70-0391-05)



For M-252
(A70-0392-05)



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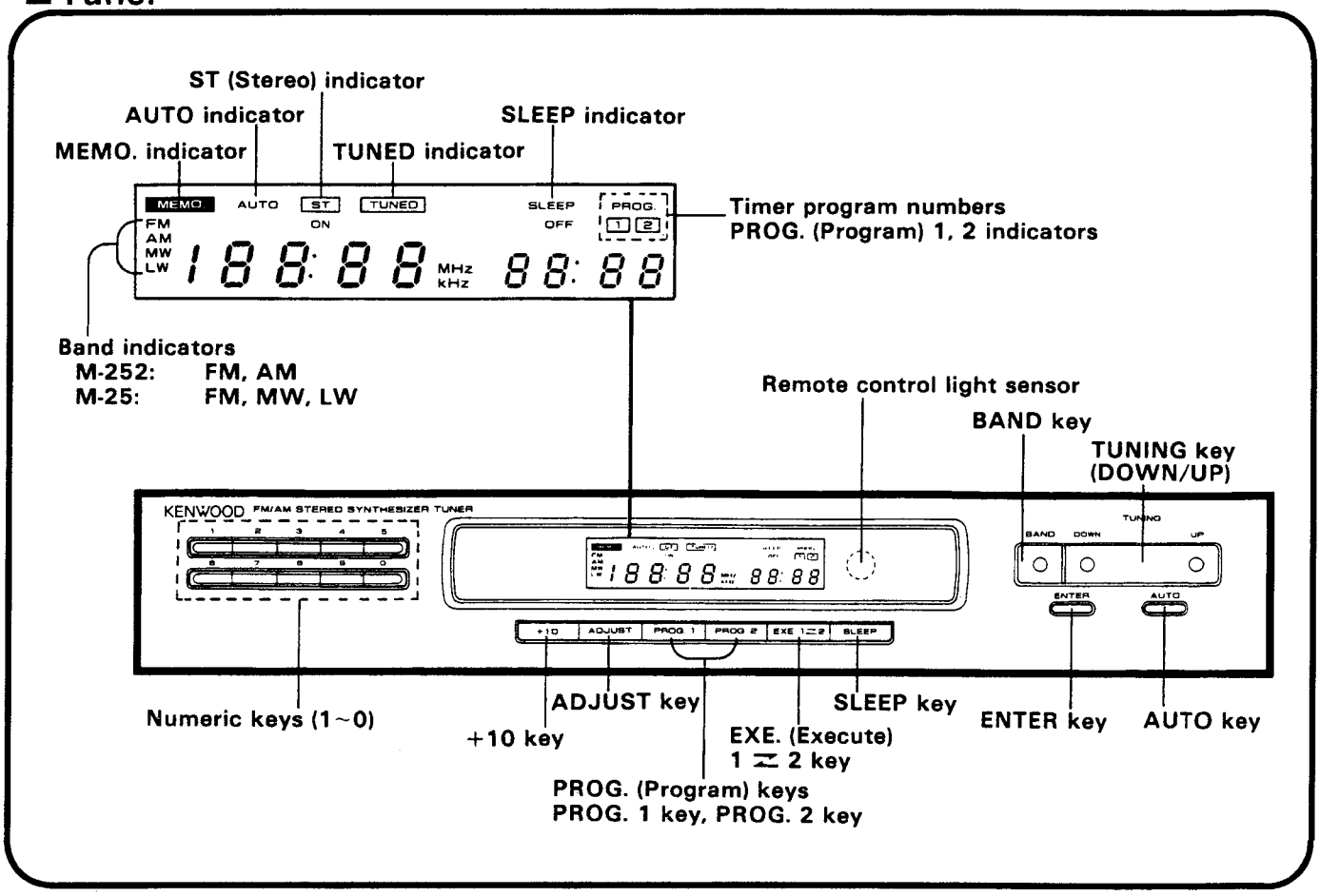
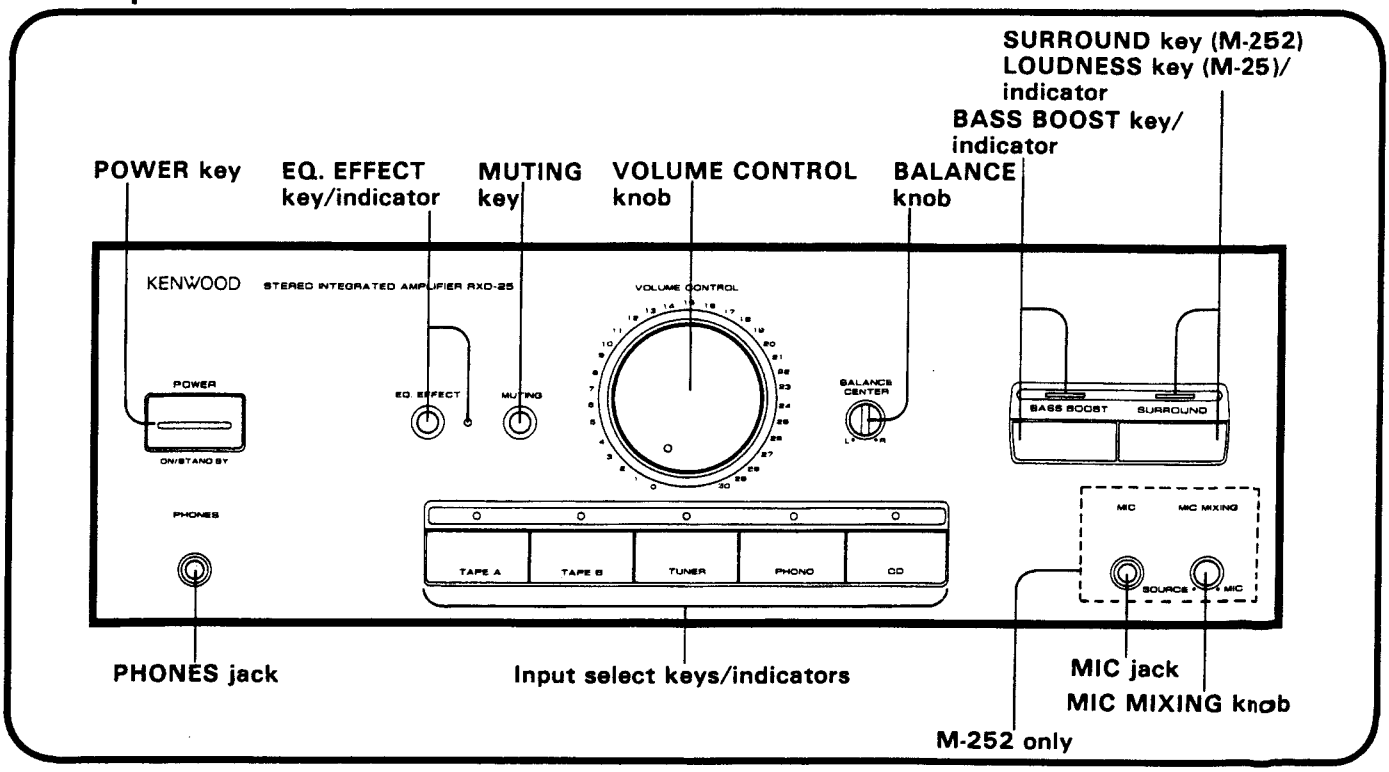
CONTROLS AND INDICATOR

■ Tuner

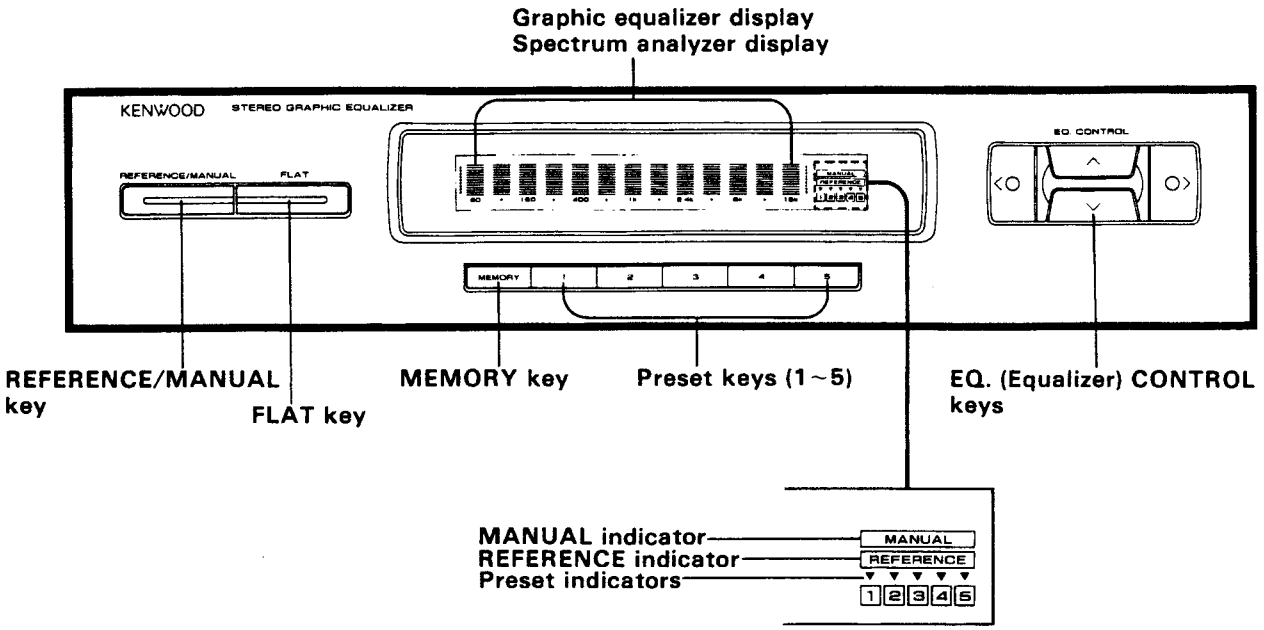


■ Amplifier

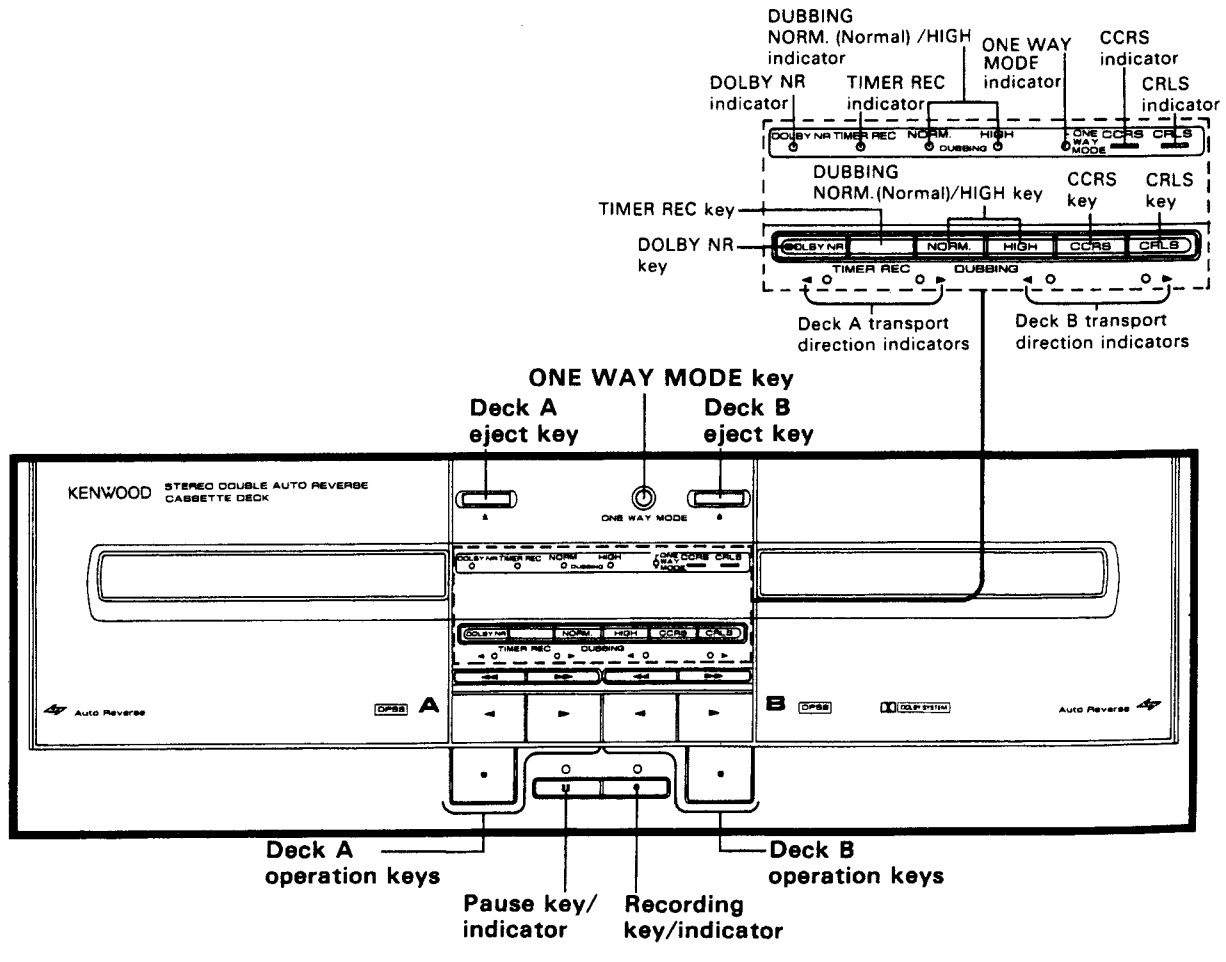


CONTROLS AND INDICATOR

■ Graphic equalizer



■ Cassette deck



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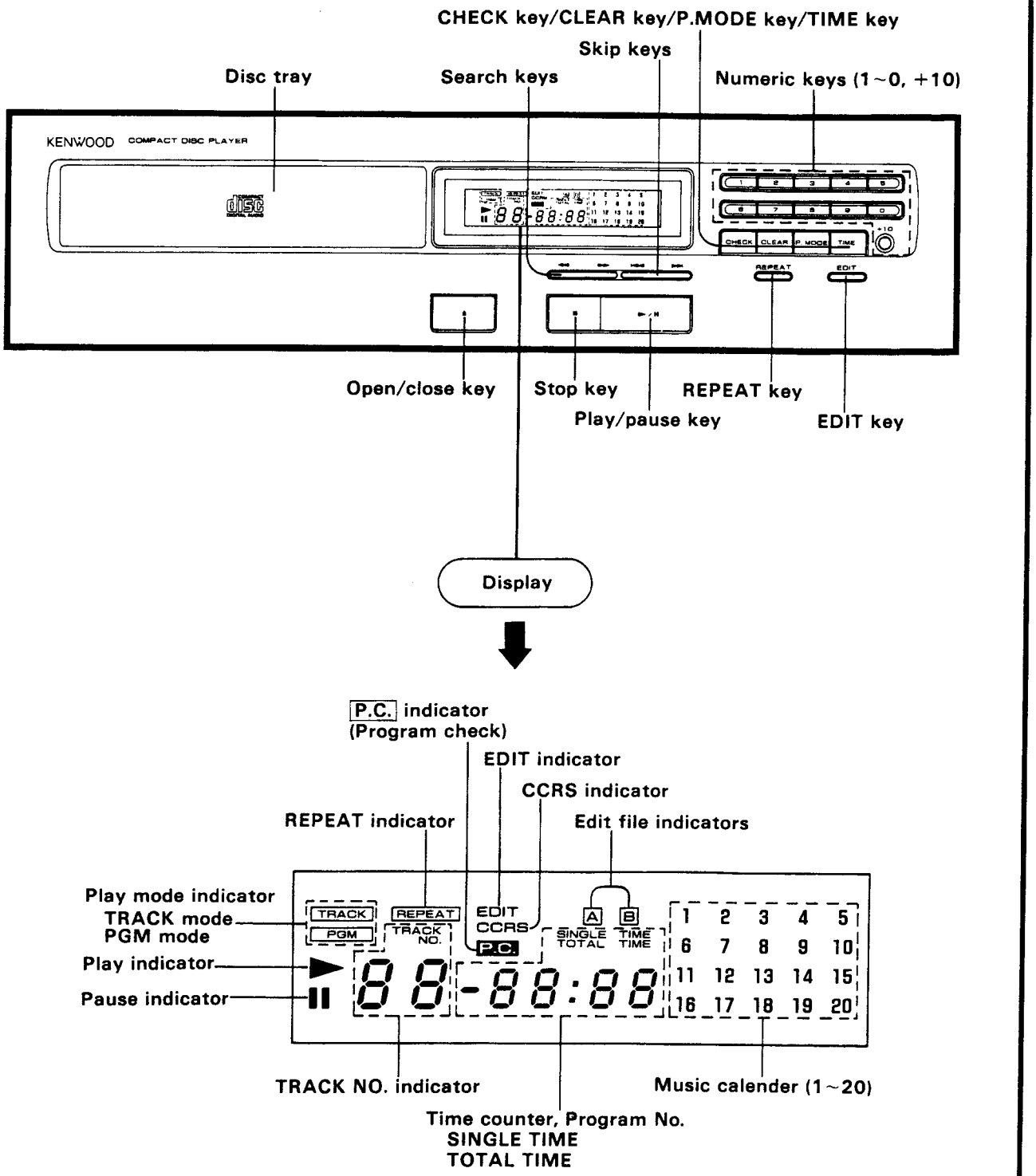
CONTROLS AND INDICATOR

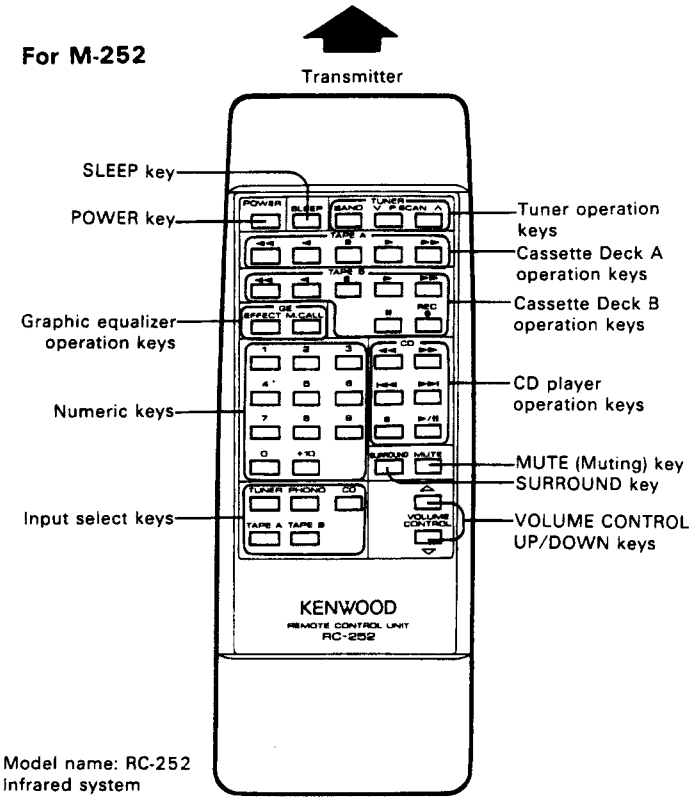
■ CD player



REMOTE CONTROL UNIT

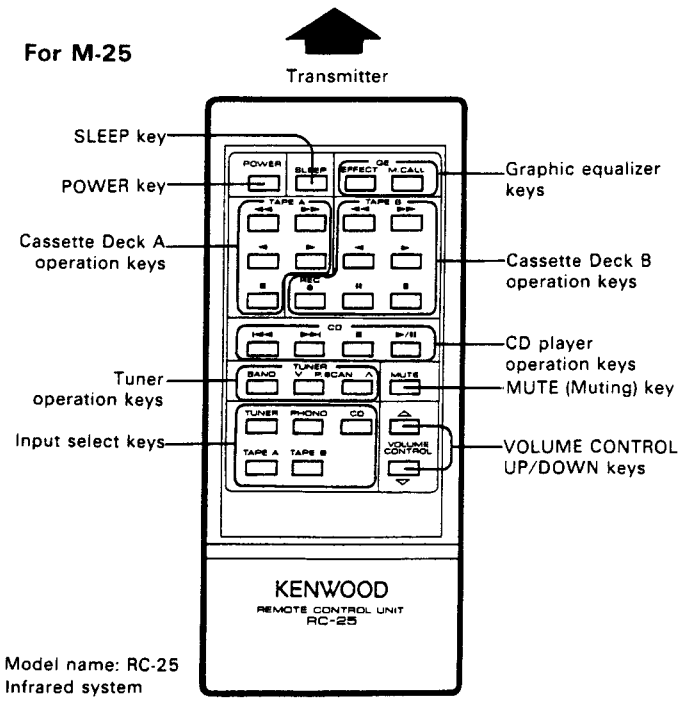
The model of the supplied remote control unit varies depending on the destination area where this unit is sold.

For M-252



Model name: RC-252
Infrared system

For M-25



Model name: RC-25
Infrared system

Eight-bit compatible remote control unit

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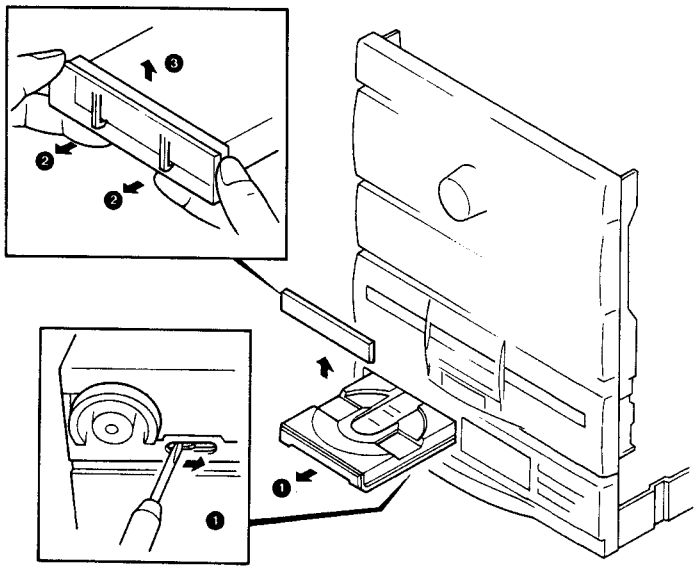
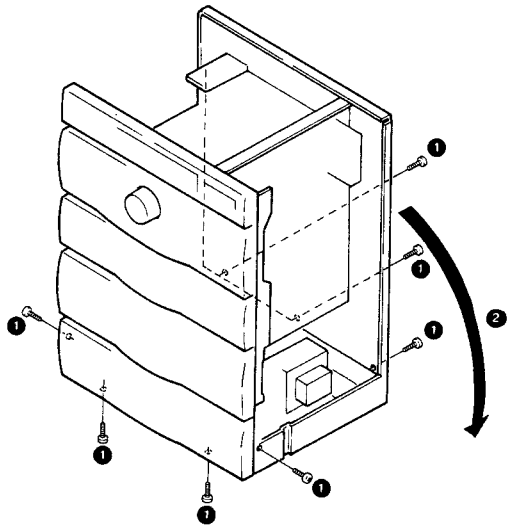
DISASSEMBLY FOR REPAIR

Disassembling CD player

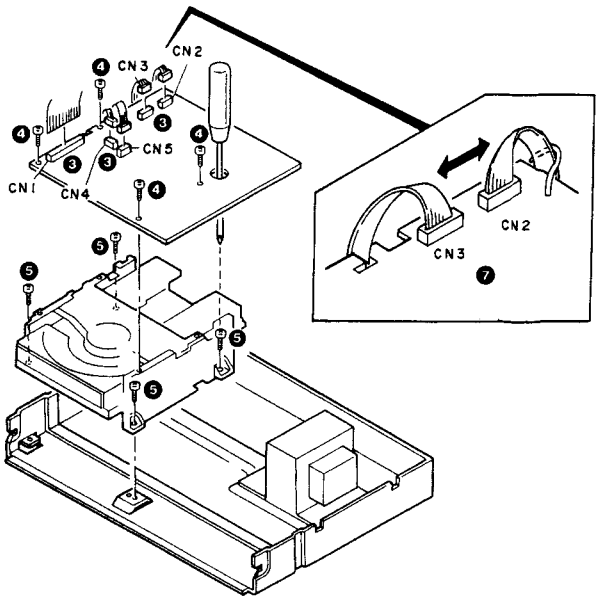
1. Pull the CD tray forward. (With the power off, insert a screwdriver through the bottom when the CD tray is pulled out, and move the lever to the right.) (❶)
2. To remove the tray face plate, unhook the two hooks (❷), lift the tray face plate (❸), and remove it, as shown in the figure.



3. Remove the seven screws (❶), then remove the main unit from the chassis horizontally and test for continuity. (❷)

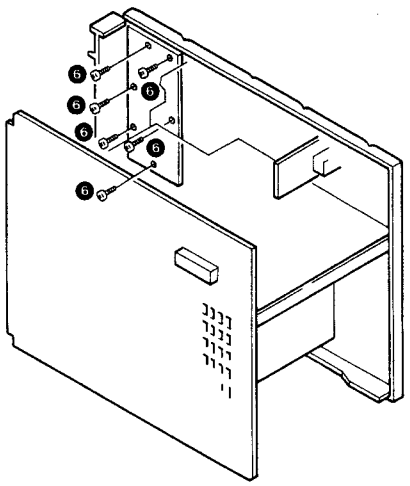


4. Reomove the five connectors. (To reconnect the connectors, keep connector CN2 away from connector CN3, as described in ❼.)
5. Remove the four screws (❹), then remove the board.
6. Remove the four screws (❺), then remove the CD drive mechanism.



DISASSEMBLY FOR REPAIR

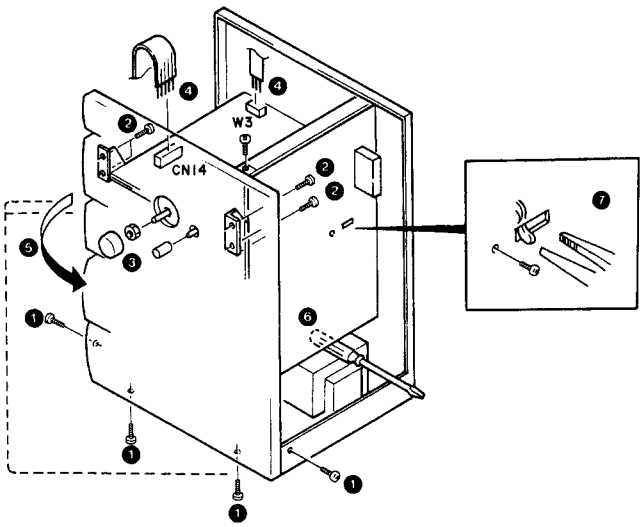
7. Remove the six screws (❻), then remove the board.



Removing the PHONES jack, MIC jack, and mechanism

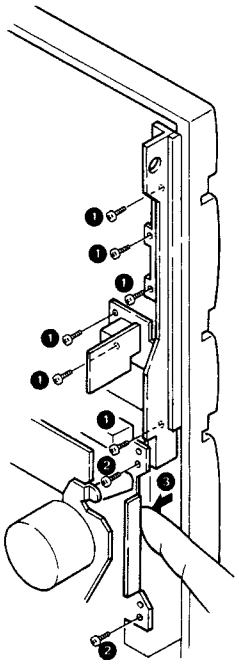
* Follow the procedure below after the CD tray face plate has been removed.

1. Remove the four screws. (❶)
2. Remove the four screws. (❷)
3. Remove the knobs and nuts. (❸)
4. Remove the two connectors. (❹)
5. Remote the front panel in the direction by the arrow. (❺)
6. Insert a screwdriver between the board and the transformer, as shown in the figure, and steady the board. (❻)
7. To remove the X28 board, remove the screws, then remove the broken hooks.(❼)



* **Removing the PHONE jack**

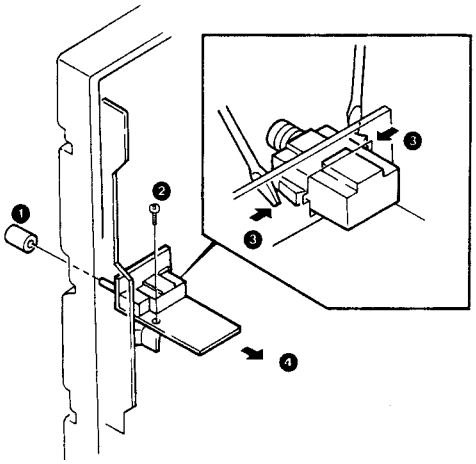
8. Remove the six screws (❶) securing the frame.
9. Remove the two screws (❷) securing mechanism A, then remove the PHONES jack along with the frame while removing one side of mechanism A, as shown inthe figure (❸).



DISASSEMBLY FOR REPAIR

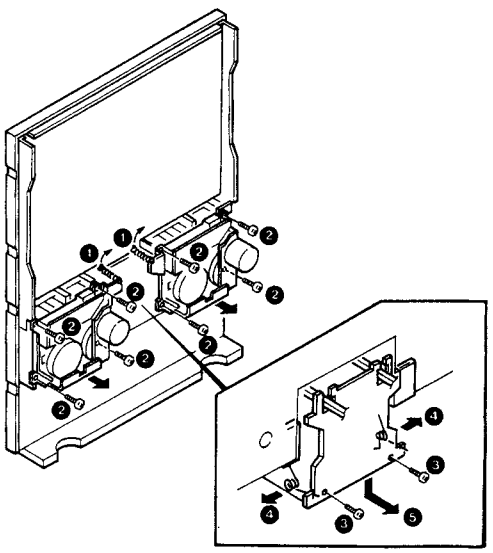
*** Removing the MIC jack**

10. Remove the knob (❶) and one screw (❷).
11. Unhook the two hooks, as shown in the figure (❸), and pull out the board. (❹)



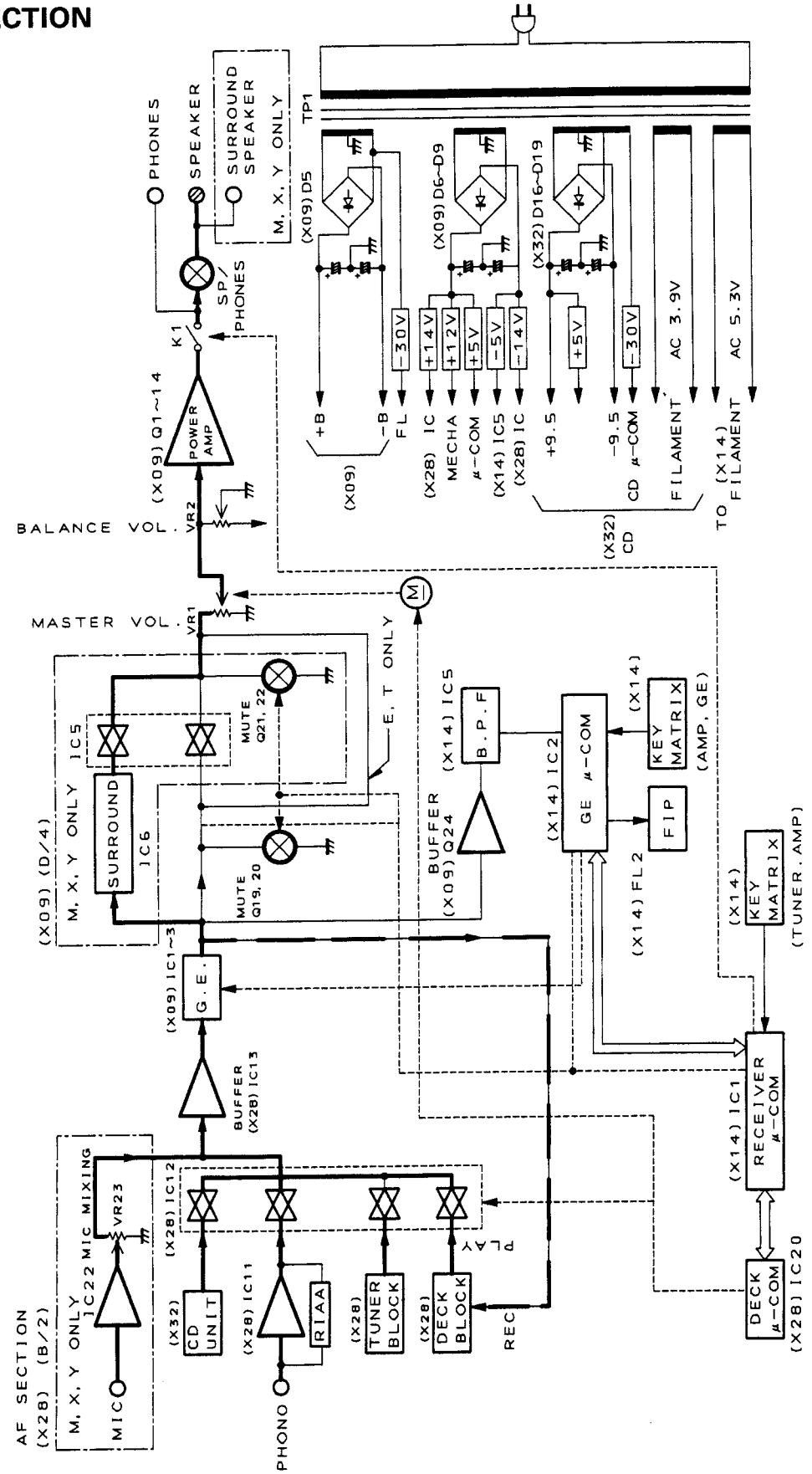
*** Removing the mechanism**

11. Remove the two springs. (❶)
12. Remove the eight screws (❷), then remove the mechansim.
13. Remove the two screws (❸) and two springs (❹), then remove the shielding plate in the direction of the arrow. (❺)



BLOCK DIAGRAM

AMP SECTION



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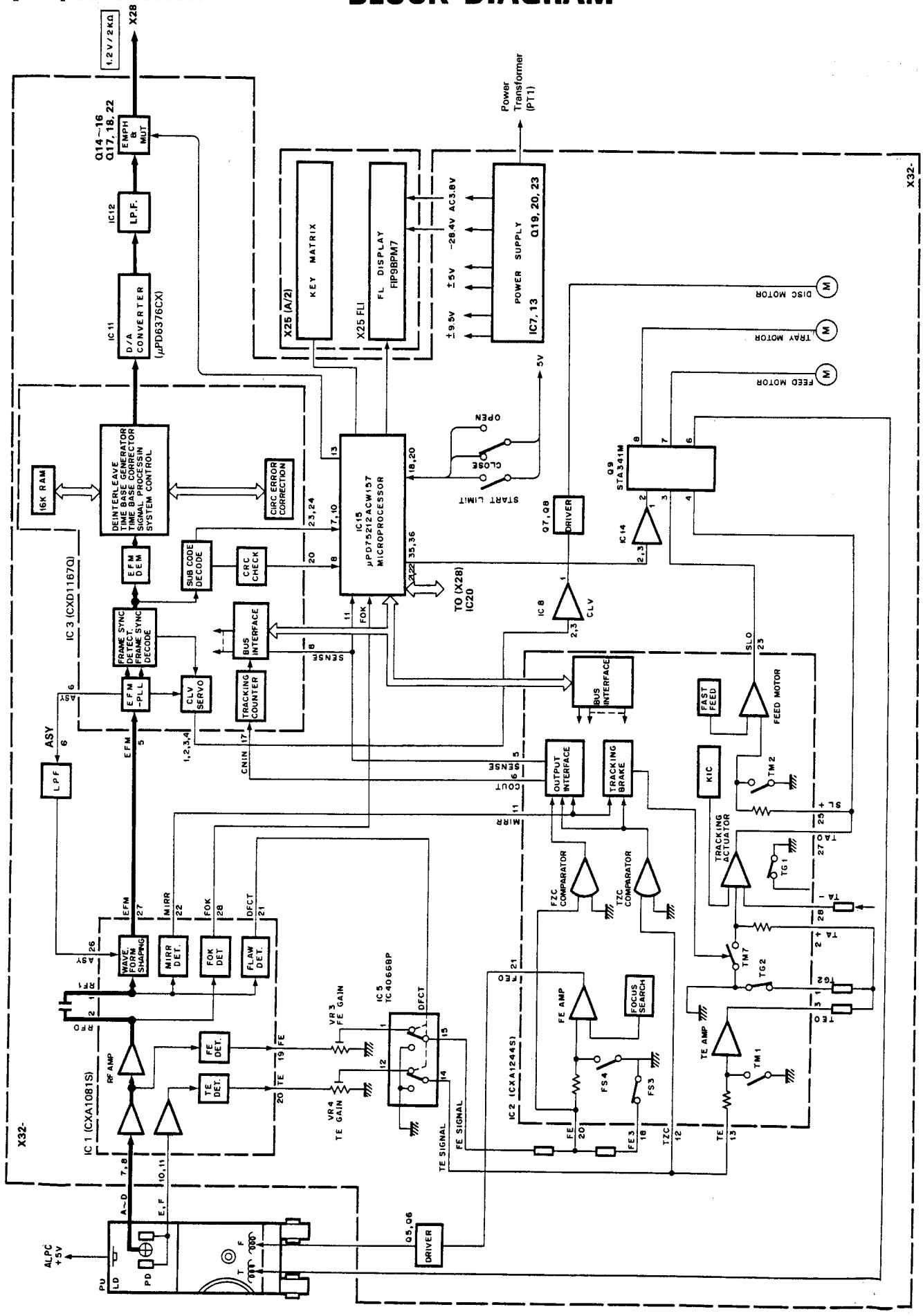
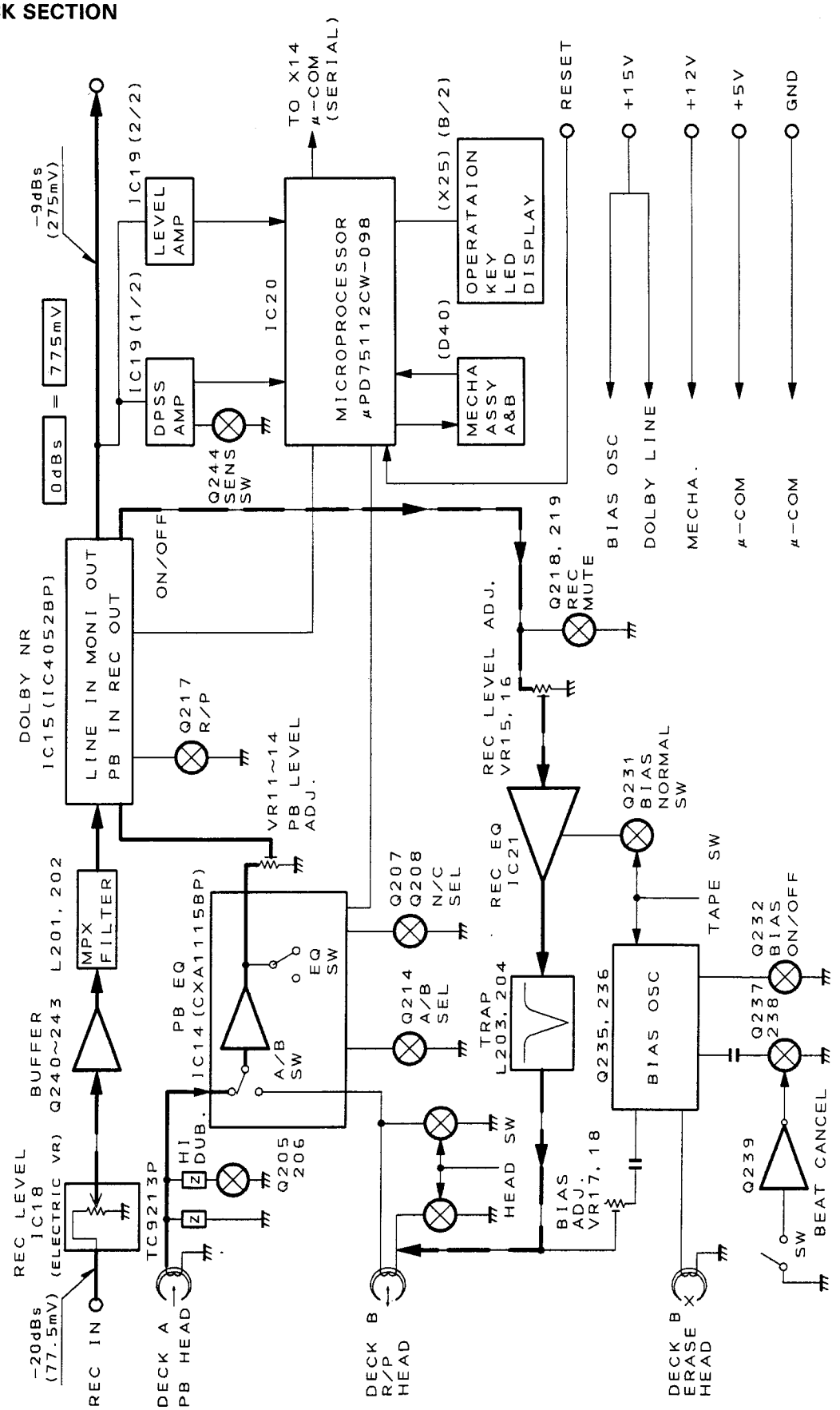
[X32] CD SECTION

BLOCK DIAGRAM



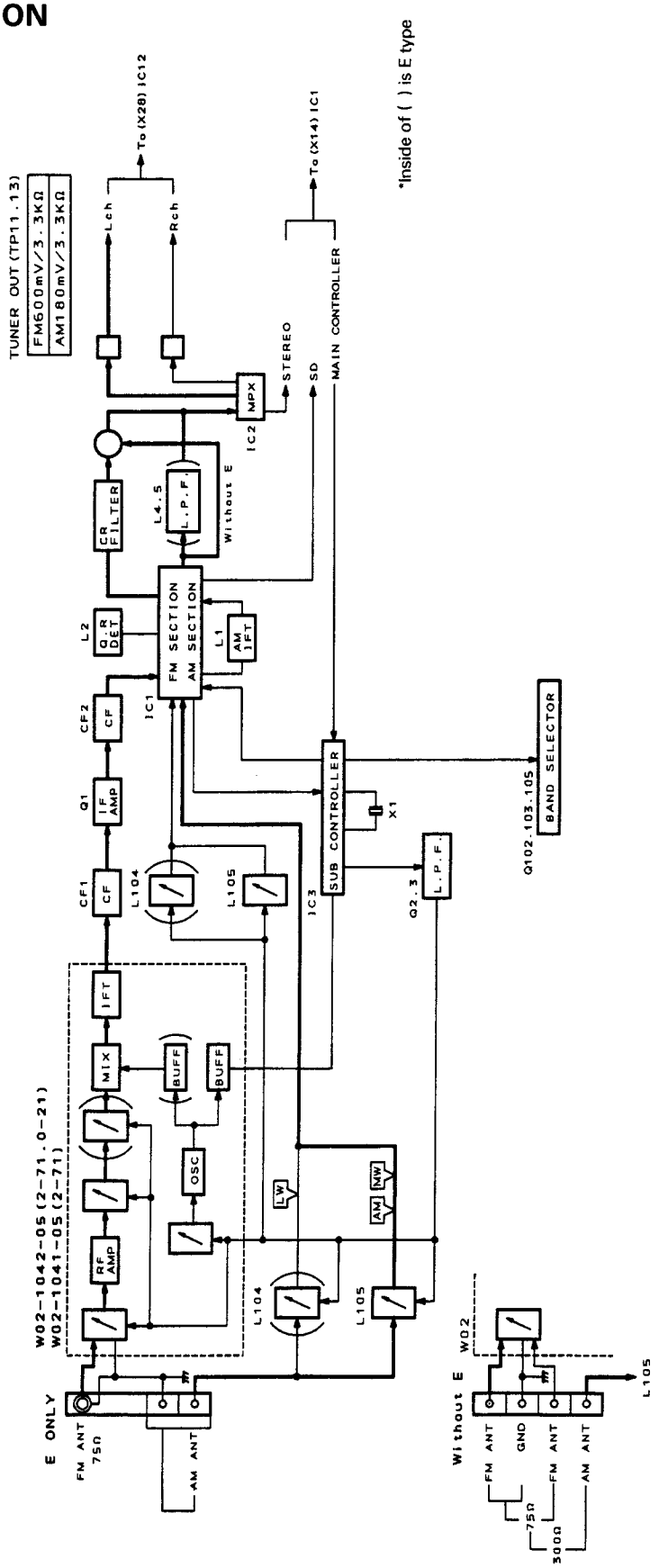
BLOCK DIAGRAM

[X28] DECK SECTION



BLOCK DIAGRAM

[X28] TUNER SECTION



CIRCUIT DESCRIPTION

1. Description of Components

1-1. CASSETTE UNIT X28-2242-70 (JAPAN MADE), X28-2262-70 (SINGAPORE MADE)

Ref. No.	Parts No.	Use/Function	Operation/Condition/Compatibility
IC11	NJM4558D-A	Phono equalizer	
IC12	TC4052BP	Input selector	Controlled at pins 36 and 37 of IC20 (microcomputer).
IC13	NJM4565D	Buffer amplifier	
IC14	CXA1115BP	PB EQ IC	Controlled by IC20 (microcomputer) and a mechanical switch. Selects the playback output of deck A or B and amplifies it.
IC15	HA12136A	Dolby B noise reduction	Controlled by Q217. Encodes or decodes the audio signal in Dolby PLAY/REC mode.
IC16	CXA1198AP	Recording amplifier	Four characteristics (NORMAL and CrO_2 at normal and high speed) are provided. The equalizer characteristic is set in the IC.
IC17	µPC1330HA	Deck B head selection	Controlled at pin 54 of IC20. Selects the head output of deck B in PLAY/REC mode.
IC18	TC9213P	Recording volume	Controlled at pins 42, 43, and 44 of IC20. Changes the input signal in 1-dB steps.
IC19 1/2	NJM4565D	DPSS amplifier	Rectifies the LINE OUT signal with the DPSS amplifier and sends the rectified signal to pin 7 of IC20. Lowers the gain in repeat mode (normal speed).
IC19 2/2	NJM4565D	Level amplifier	Usually functions as the level meter amplifier. Rectifies the LINE OUT signal and sends the rectified signal to pin 8 of IC20. Lowers the gain in CCRS mode and functions as the CCRS amplifier.
IC20	µPD75112CW-098	Deck microcomputer	Controlled by X25. Controls the mechanism and all other electronic circuits.
IC21	TC4051BP	Recording equalizer selection	Controlled at pins 49 and 50 of IC20.
IC22	NJM4558D-A	Microphone amplifier	
Q205, 206	DTC124EN	Deck A playback high-frequency compensation selection during double-speed dubbing	Off only during double-speed dubbing. On in modes other than double-speed dubbing.
Q207, 208	2SC1740S (Q, R)	Playback amplifier time constant selection.	On when a CrO_2 tape is used during double-speed dubbing
Q209~212	2SC1740S (Q, R)	Playback output level adjustment selection	Q207 and Q210 are turned on and Q211 and Q212 off when deck A is in PLAY mode. Q209 and Q210 are turned off and Q211 and Q212 on when deck B is in PLAY mode.
Q213, 214	2SC1740S (Q, R)	P.B. EQ Switch	Controlled at pin 55 of IC20. Q213 is turned on, Q214 off, and Q209 and Q210 on when deck A is used. VR11 and VR12 are then grounded. Q213 is turned off, Q214 on, and Q211 and Q212 on when deck B is used. VR13 and VR14 are then grounded.
Q215, 216	2SC1740S (Q, R)	Playback output muting	On in REC mode. Off in modes other than REC.
Q217	2SC1740S (Q, R)	Dolby PLAY/REC selection	Off in REC mode. On in modes other than REC.
Q218, 219	2SC2878 (B)	Rec mute	Off in REC mode. On in modes other than REC.
Q220	DTA124EN	Rec mute drive	Controlled at pin 51 of IC20. Off in REC mode only.
Q229	2SC1740S (Q, R)	High-speed inversion	A Q205 and Q206 inversion output signal is supplied during high speed. On (low) during high speed.
Q231	DTC124EN	Bias normal switch	Controlled at pin 49 of IC20. On in normal REC mode.
Q232	DTC124EN	Bias ON/OFF	Controlled at pin 52 of IC20. Off in REC mode only.
Q233	2SC1740S (Q, R)	Bias control (B)	Controlled by Q232. Supplies the bias voltage appropriate to the tape in use to Q234.
Q234	2SD863 (E, F)	Bias control (B)	Controlled by Q233. Supplies the bias voltage appropriate to the tape in use to Q235 and Q236.

IC21 — Controlled at pins 49 and 50 of IC20.

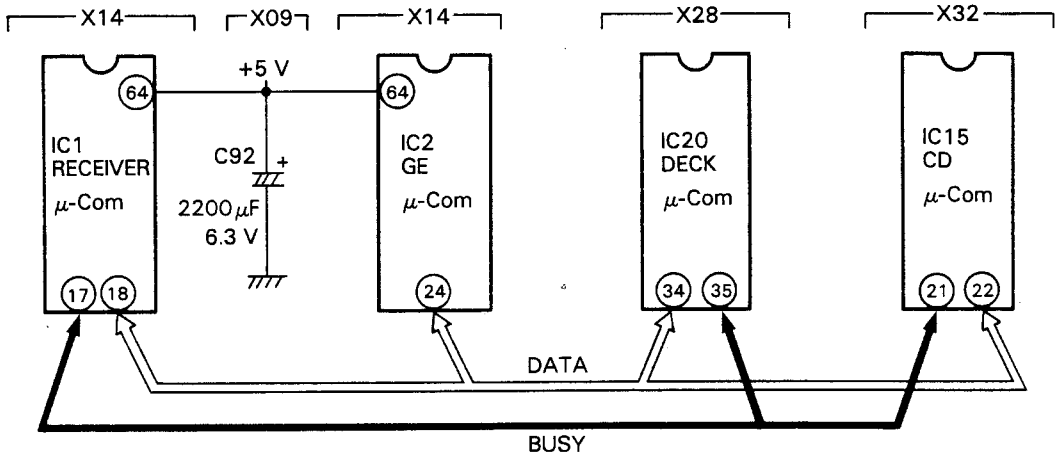
	C 9 pin	B 10 pin	A 11 pin	4 1 pin	5 5 pin	6 2 pin	7 4 pin
Chrome: Normal speed	H	L	L	O	×	×	×
Chrome: High speed	H	L	H	×	O	×	×
Normal: Normal speed	H	H	L	×	×	O	×
Normal: High speed	H	H	H	×	×	×	O

CIRCUIT DESCRIPTION

Ref. No.	Parts No.	Use/Function	Operation/Condition/Compatibility
Q235, 236	2SC945 (A), (Q, P)	Bias OSC (B)	Controlled by Q234. Oscillates (at 105 kHz) only when deck B is in REC mode.
Q237, 238	2SC1845 (F, E)	Beat cancel switch	Controlled by Q239. Usually on when OFF switch SW111 is changed from "1" to "2".
Q239	2SA992 (F, E)	Beat cancel level shifter	Controlled by switch SW111. On when switch SW111 is changed from "1" to "2".
Q240, 241	2SC1845 (F, E)	Electronic variable resistor buffer	Prevents interference in the first and second stages of the electronic variable resistor (VR) (IC18).
Q242, 243	2SC1740S (Q, R)		
Q244	2SC1740S (Q, R)	Repeat switch	Controlled at pin 40 of IC20. On during repeat.
Q245	2SA733(A) (Q, P)	Level amplifier slicer	Slices the level amplifier output to +5 V.
Q246	2SA733(A) (Q, P)	Normal speed switch (A)	Controlled by Q247. On during normal speed.
Q247	DTC124EN	High speed switch (A)	Controlled at pin 63 of IC20. Off during high speed.
Q248	2SC3246	Motor switch (A)	Controlled at pin 62 of IC20. On during transport.
Q249	2SC3246	Solenoid 1 switch (A)	Controlled at pin 61 of IC20. On during kick.
Q250	2SC3246	Solenoid 2 switch (A)	Controlled at pin 60 of IC20. On during kick.
Q251	2SA733(A) (Q, P)	Normal speed switch (B)	Controlled by Q252. On during normal speed.
Q252	DTC124EN	High speed switch (B)	Controlled at pin 59 of IC20. Off during high speed.
Q253	2SC3246	Motor switch (B)	Controlled at pin 58 of IC20. ON during transport.
Q254	2SC3246	Solenoid 1 switch (B)	Controlled at pin 57 of IC20. On during kick.
Q255	2SC3246	Solenoid 2 switch (B)	Controlled at pin 56 of IC20. On during kick.
Q261, 262	2SC945(A) (Q, P) 2SC1740S (Q, R)	Automatic level control (ALC)	Q261 is turned on when the microphone amplifier output signal is excessive. The microphone input signal is then limited.
Q263	2SC945(A) (Q, P) 2SC1740S (Q, R)	ALC ON/OFF switch	Usually on. Off in REC mode. The ALC circuit is on in REC mode only.

CIRCUIT DESCRIPTION

2. Microprocessor



Microprocessor	μPD75208CW-A97	M50940-314SP	μPD75112CW-098	μPD75212ACW-157

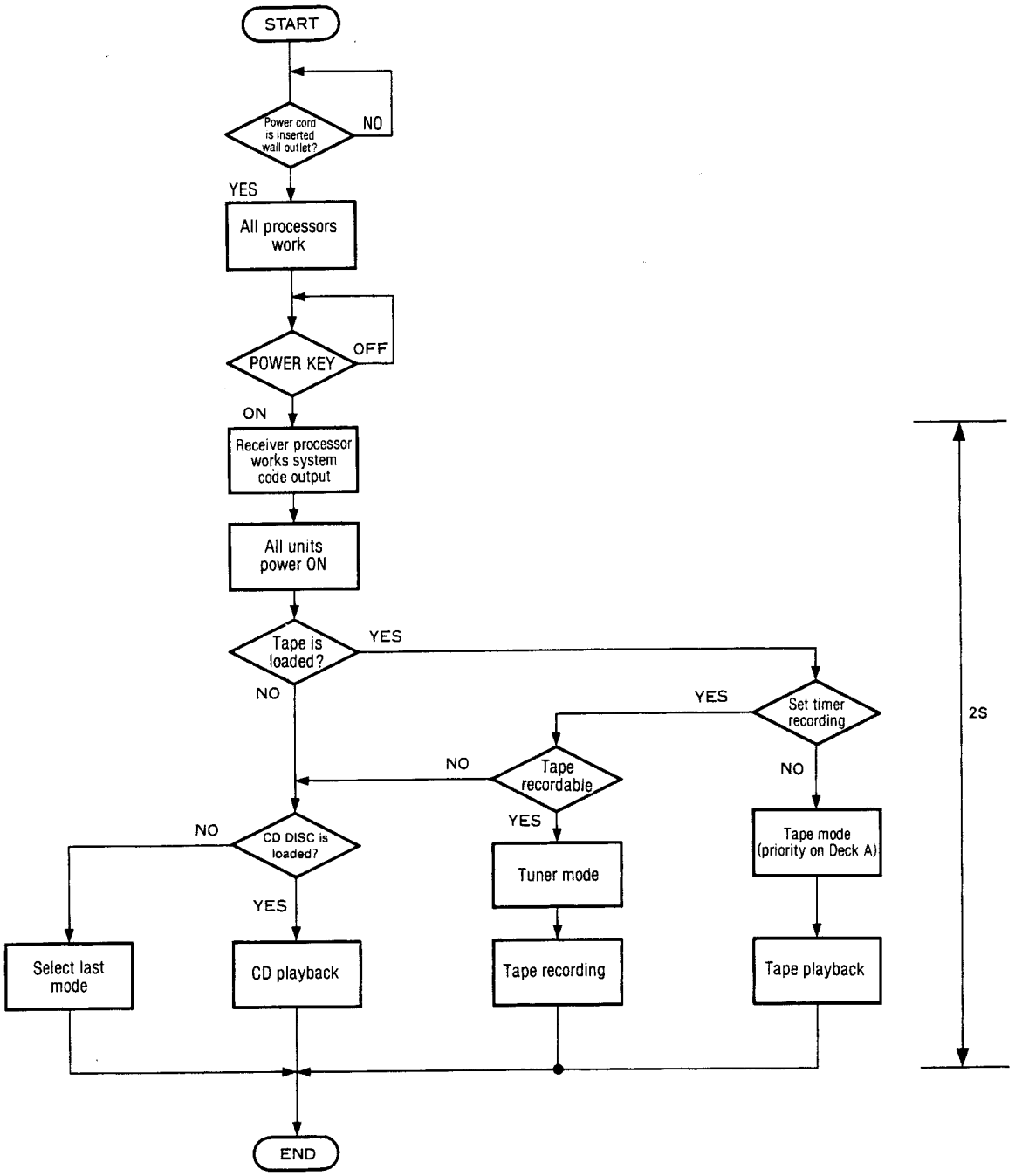
An internal 8-bit system control sync code is used during operation.

Microprocessor Initialization and Test Mode

		Receiver microprocessor (X14) IC1	GE microprocessor (X14) IC2	Deck microprocessor (main) (X28) IC20	CD microprocessor (X32) IC15
	Backup capacitor	• C92 on X09 board (2200 μF, 6.3 V) (Backup time of more than 3 days. Can actually provide back-up for 1 week.)		—	—
	Initialize setting	• Connect the power cord while pressing the selector TUNER key.	Connect the power cord while pressing the selector TUNER key.	When the power cord is disconnected, then connected again.	When the power cord is disconnected, then connected again.
Test Mode	Operation	• All FL and LED indicators go on.			
	Setting	• Connect the power cord while pressing the selector TAPE A key with the power switched on.			
	Canceling	(1) Press the selector TUNER key when all indicators go on with the power switched on. (2) Disconnect the power cord.			
	Operation	—		• Refer to page 39.	• Refer to page 22.
	Setting	—		• Connect the power cord while pressing the selector TAPE B key.	• Connect the power cord while pressing the selector CD key.
	Canceling	—		(1) Set the POWER key to ON or OFF. (2) Press the other selector keys.	
		—		(3) Set the CD in the PLAY mode.	(3) Set the deck in the PLAY mode.
		—		(4) When the power cord is disconnected, then connected again (initialization).	

CIRCUIT DESCRIPTION

3. Flow chart of playback after power ON.



* When set the last-mode timer playback (except Deck and CD player) don't load the cassette tape and compact disc.

CIRCUIT DESCRIPTION

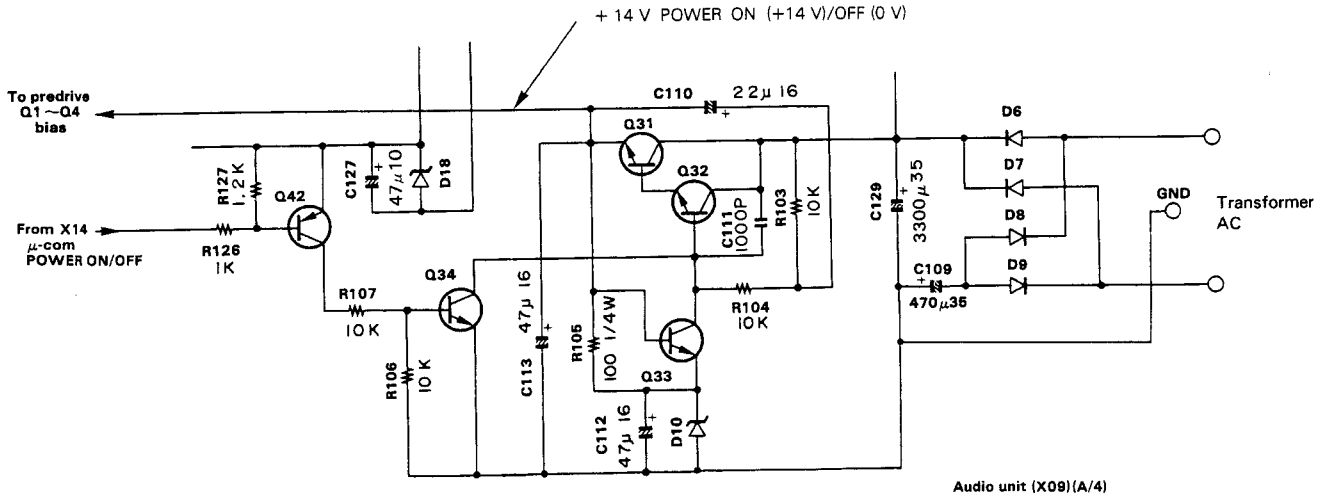
4. POWER ON/OFF circuit

For remote control operation, a remote controller incorporating a small transformer was previously used for the drive microprocessor power by using a power relay.
The primary winding of a large transformer conducts, and all voltages appear on its secondary winding. The +14 V power output at Q34 is switched ON and OFF by the POWER ON/OFF circuit, and the +14 V power current is blocked. This +14 V current is used for bias in the initial stage, so the currents of class A predrivers Q1 through Q4 become zero. Therefore, the final-stage bias current also becomes zero.

- **All voltages other than +14 V are applied on the secondary winding, but the current is blocked to prevent heat generation.**

The voltage is applied unless the power cord is disconnected. Be sure to disconnect the power cord before soldering and replacing parts.

[X09]



5. Serial Communication Troubleshooting

5-1. When other devices cannot be activated during receiver operation

Example: When the POWER switch of the cassette receiver is set to ON, the amplifier is switched ON, but the tuner is not switched ON (with the timer displayed).

Description Even if the receiver operates, other devices are not activated as follows:

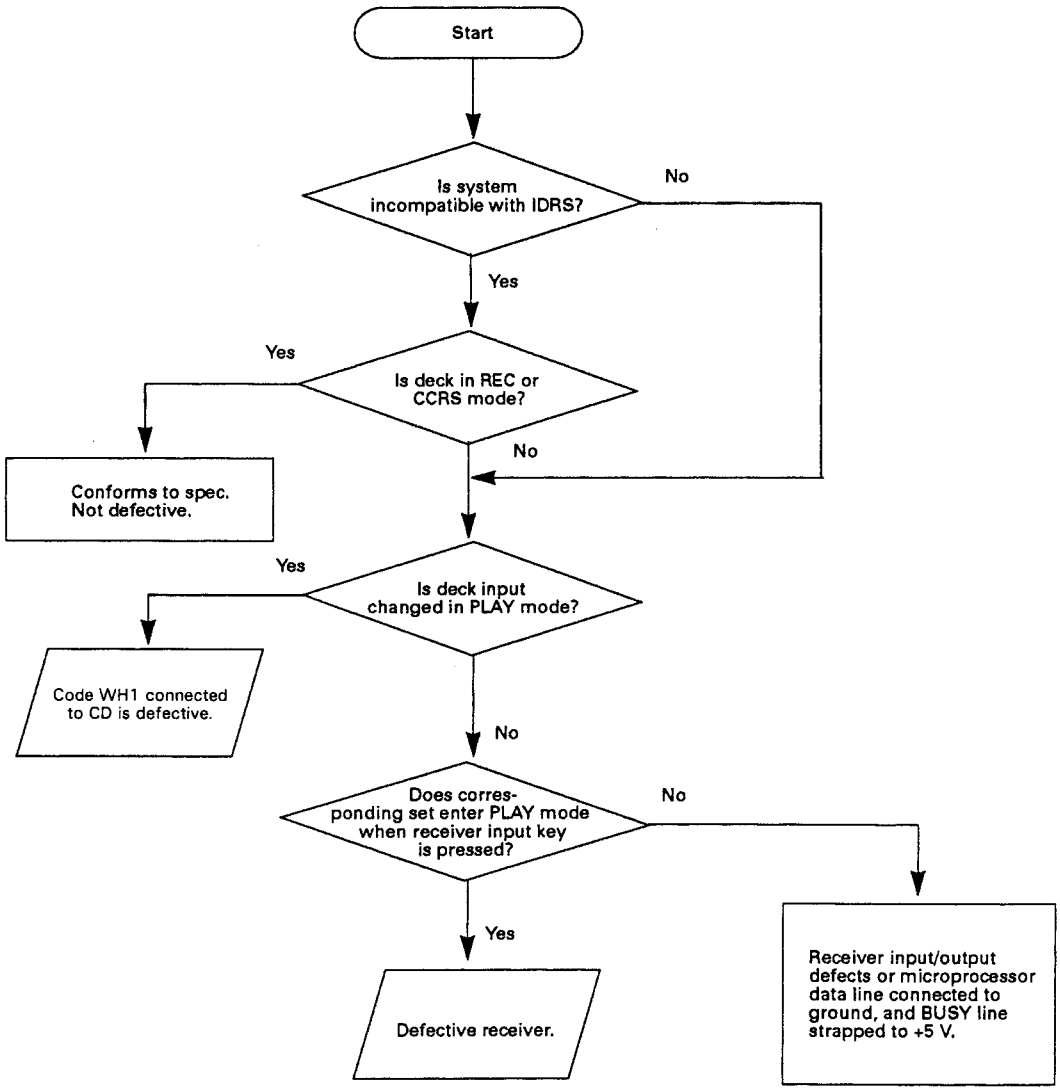
(1) Only the specified device cannot be activated, and other devices are easy to operate.
(2) The receiver can operate, but other devices are not activated. When other devices are set in the PLAY mode, the receiver input is activated with them.
(3) No device can be activated during receiver operation.

Possible cause

- For step (1), the specified device or the serial code connected to the device is defective.
- For step (2), the receiver serial output related block is defective.
- For step (3), the receiver serial input or output is defective, or no data voltage appears because the data line of same device is connected to ground or some device cannot output because a BUSY line is connected or the +B (5 V) terminal.

CIRCUIT DESCRIPTION

5-2. The receiver input selector is inoperative even if devices other than the receiver are set in the PLAY mode.
Example When the CD player is set in the PLAY mode, the receiver input selector cannot be set to CD.


Start
Is system incompatible with IDRS?
No
Yes
Yes
Is deck in REC or CCRS mode?
No
Conforms to spec. Not defective.
Yes
Is deck input changed in PLAY mode?
Code WH1 connected to CD is defective.
No
Does corresponding set enter PLAY mode when receiver input key is pressed?
No
Yes
Defective receiver.
Receiver input/output defects or microprocessor data line connected to ground, and BUSY line strapped to +5 V.

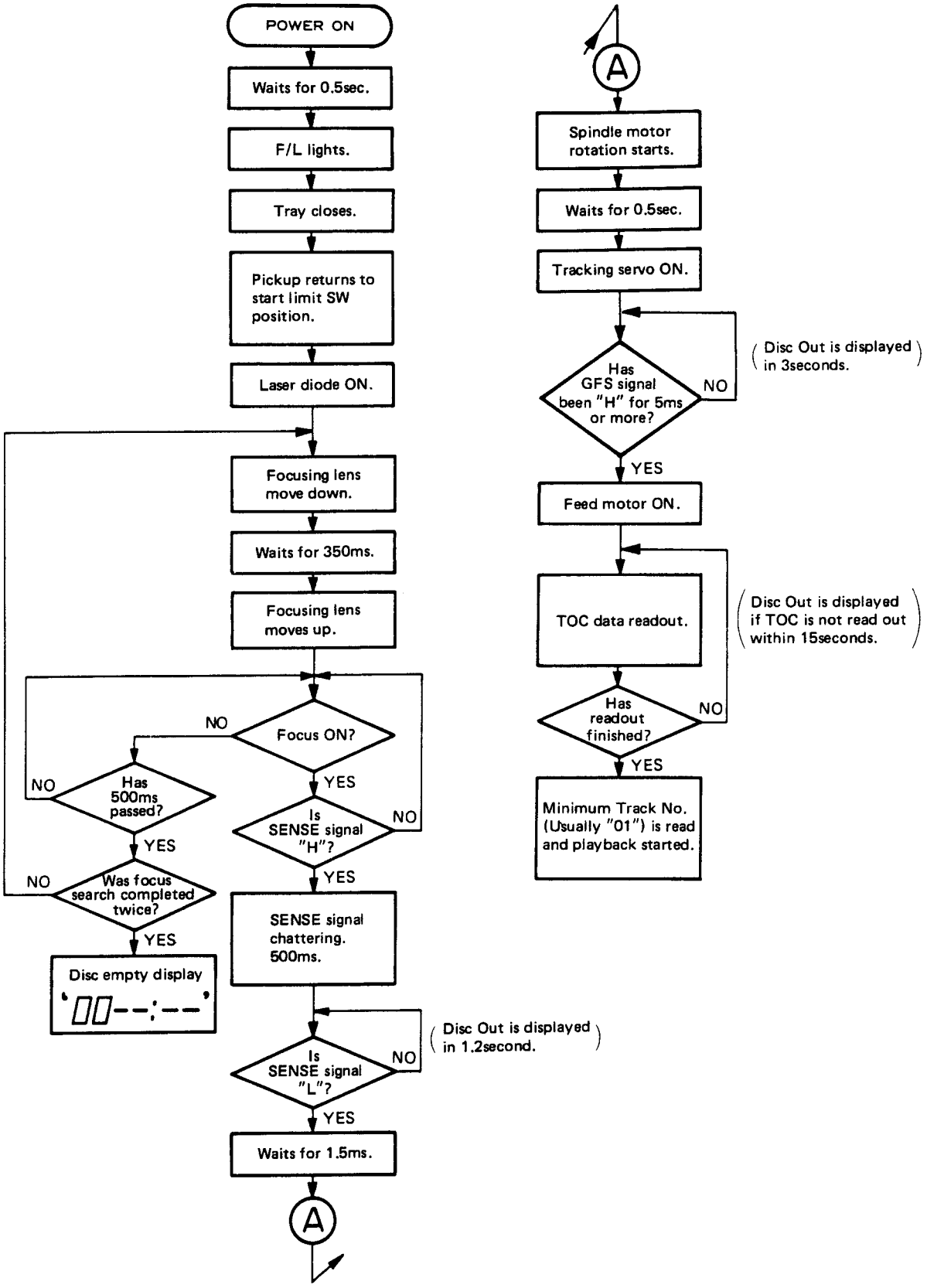
Description
The trouble above is also classified into the following:
(1) Only the specified device cannot be activated, and other devices are easy to operate.
(2) If other device's selector or play key is pressed, Amplifier's selector doesn't change (no output).
(3) No device can be activated.

Possible cause
For step (1), the specified device is defective.
For step (2), the receiver serial input is defective.
For step (3), same as in (3) of the preceding item.

CIRCUIT DESCRIPTION

CD SECTION

1. Outline after POWER ON

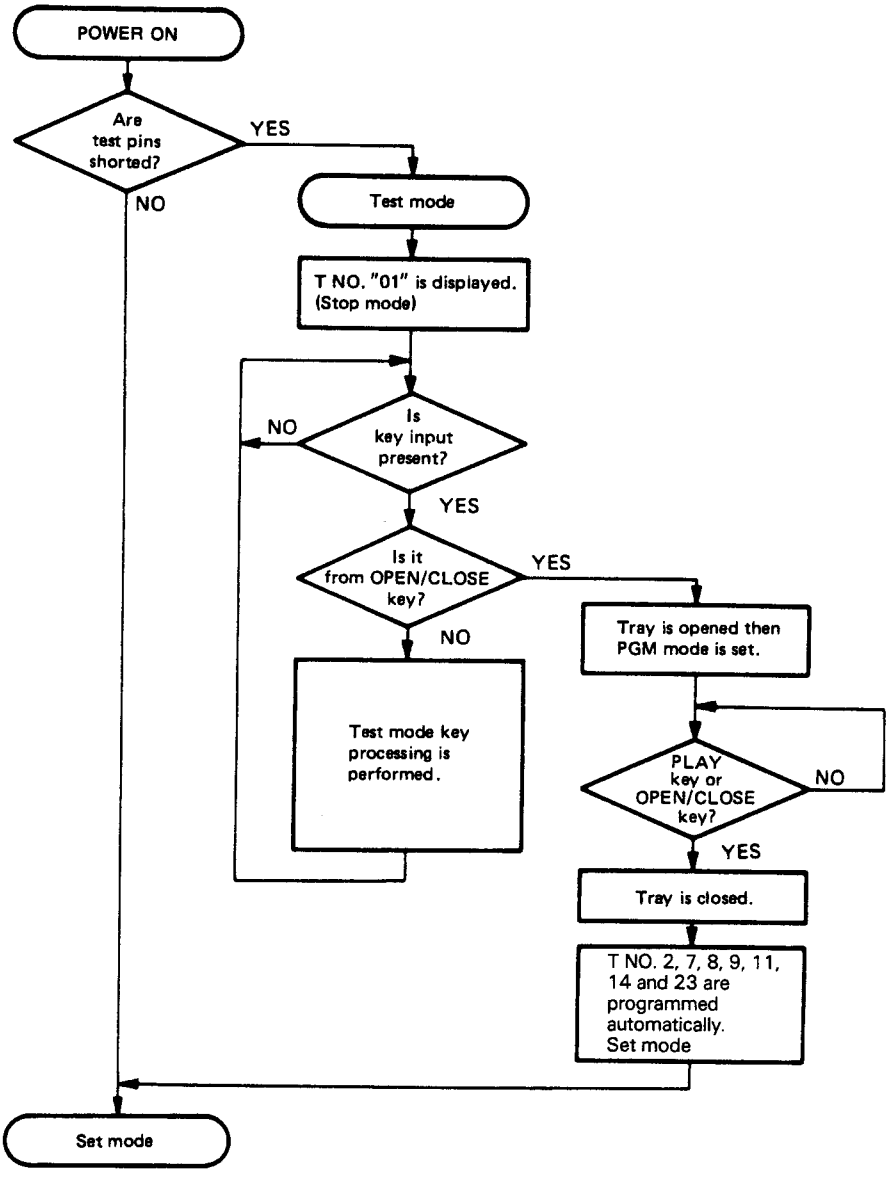


CIRCUIT DESCRIPTION

2. Test Mode

2-1. Setting the Test Mode

* Short circuit the test pins (❶ and ❷) on the CD player control PC board (X32).
* Insert AC power cord to wall outlet while pressing CD key on the amplifier selector.



CIRCUIT DESCRIPTION

2-2. Key and functions valid in test mode

No.	Input key	Function	Track No. display
1	PLAY	(1) Focusing servo ..... ON. (2) Tracking servo ..... ON. (3) Feed servo ..... ON.	05 ↓ Displayed for a few seconds after completion of (1), (2) and (3). ↓ Disc Track No. is displayed.
2	CHECK	(1) Focusing servo ..... ON. (2) Tracking servo ..... OFF. (3) Feed servo ..... OFF.	03
3	CLEAR	(1) Focusing servo ..... ON. (2) Tracking servo ..... ON. (3) Feed servo ..... OFF.	04
4	STOP	(1) Focusing servo ..... OFF. (2) Tracking servo ..... OFF. (3) Feed servo ..... OFF.	01
5	REPEAT	(1) Tray ..... Opened. (2) Laser ..... ON. The REPEAT function is canceled when the tray is closed by pressing the tray. The Track No. display	02
6	▶▶	Turns all FL display lamps ON.	
7	◀◀	Turns all FL display lamps OFF.	
8	Numeric key	Pickup slides at start limit SW.	
9	OPEN/CLOSE	When the tray is opened then closed, Track No. 2, 7, 8, 9, 11, 14 and 23 are programmed and the test mode is canceled.	
10	P. MODE	Track No. 2, 7, 8, 9, 11, 14 and 23 are programmed and the test mode is canceled.	
11	REPEAT PLAY	When REPEAT key is pressed, Tray is opened. And PLAY key is pressed, playback Track No. 6.	
12	EDIT	When EDIT key is pressed, EDIT on the display is lighted.	

2-3. TOTAL TEST MODE

How to check CCRS operation in TEST MODE

1. Set only the CD player to TEST MODE (Don't load cassette tape in the decks).
2. Load the cassette tape into the cassette decks after about 4 seconds.
3. Press the CCRS key.
   CD player will playback disc without sampling the disc level for 40 seconds. And then casette deck will be in recording mode.

2-4. INITIAL SETTING

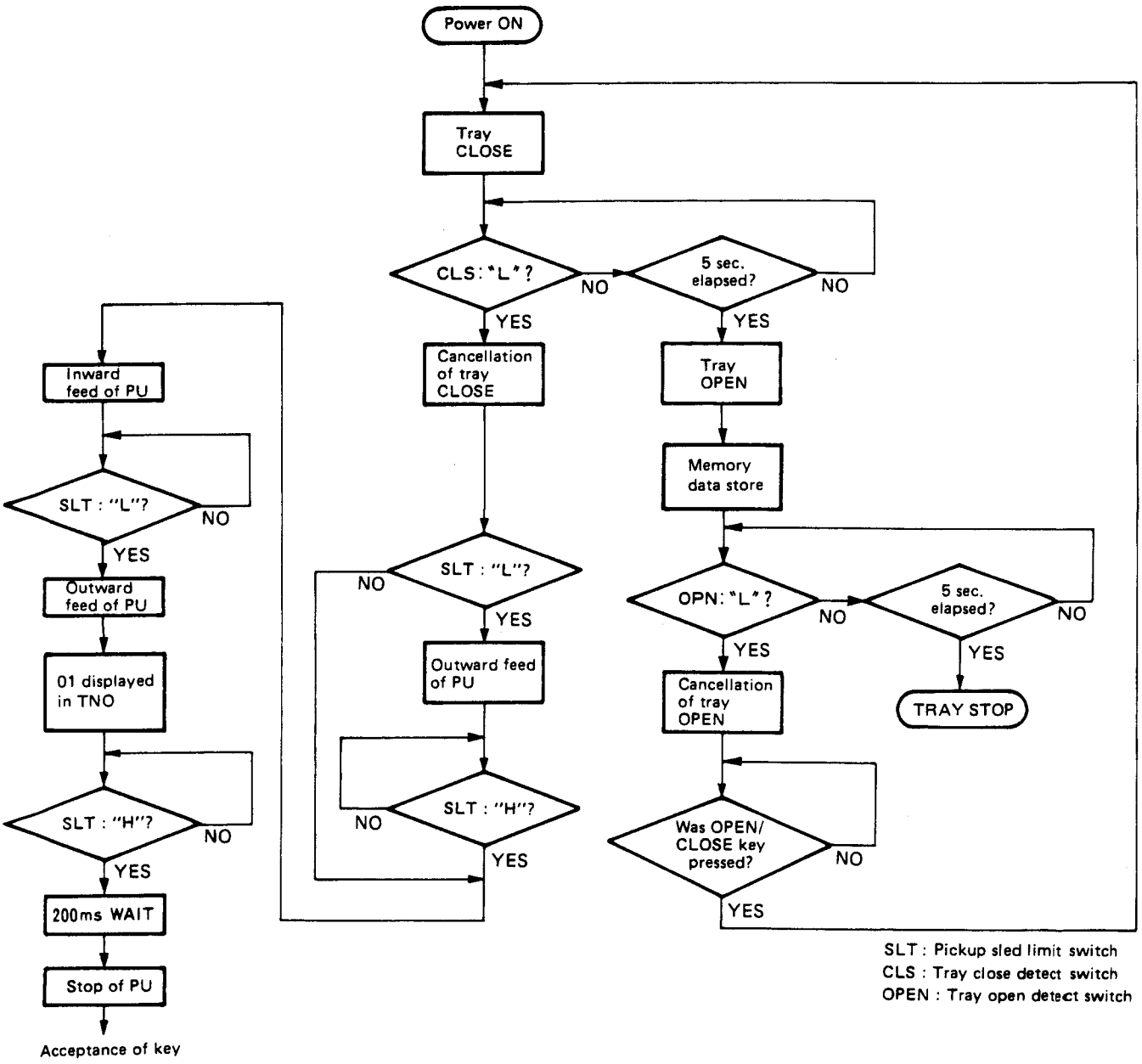
When the power cord is disconnected, then connected again, the initial settings is entered.

CIRCUIT DESCRIPTION

C D

2-5. Flowchart of test mode

• Flowchart from tray OPEN status after power ON



SLT : Pickup sled limit switch
CLS : Tray close detect switch
OPEN : Tray open detect switch

CIRCUIT DESCRIPTION

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3	CLEAR	(1) Focusing servo ..... ON. (2) Tracking servo ..... ON. (3) Feed servo ..... OFF.	04
4	STOP	(1) Focusing servo ..... OFF. (2) Tracking servo ..... OFF. (3) Feed servo ..... OFF.	01
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6	▶▶	Turns all FL display lamps ON.	
7	◀◀	Turns all FL display lamps OFF.	
8	Numeric key	Pickup slides at start limit SW.	
9	OPEN/CLOSE	When the tray is opened then closed, Track No. 2, 7, 8, 9, 11, 14 and 23 are programmed and the test mode is canceled.	
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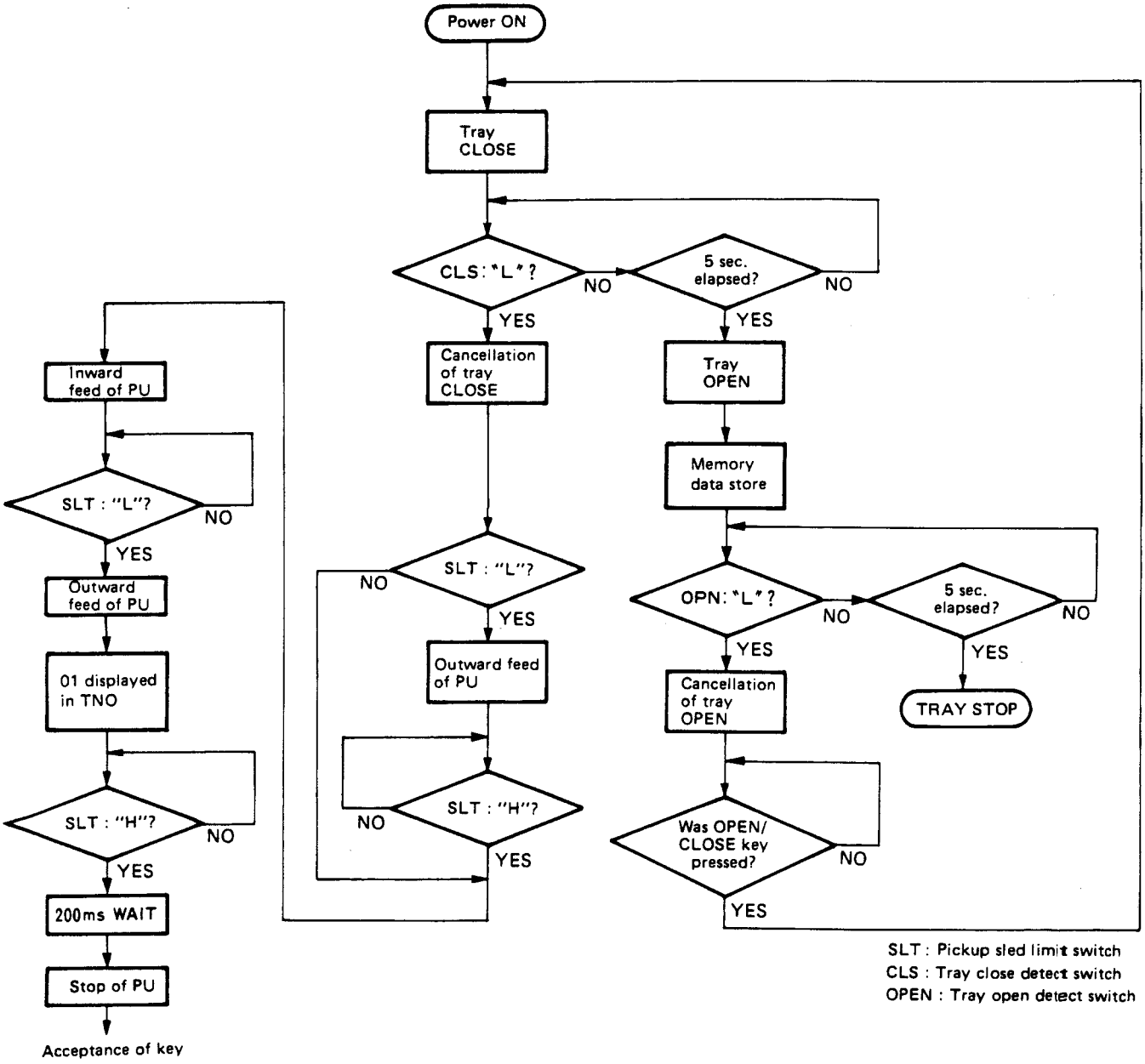
CIRCUIT DESCRIPTION

2-5. Flowchart of test mode

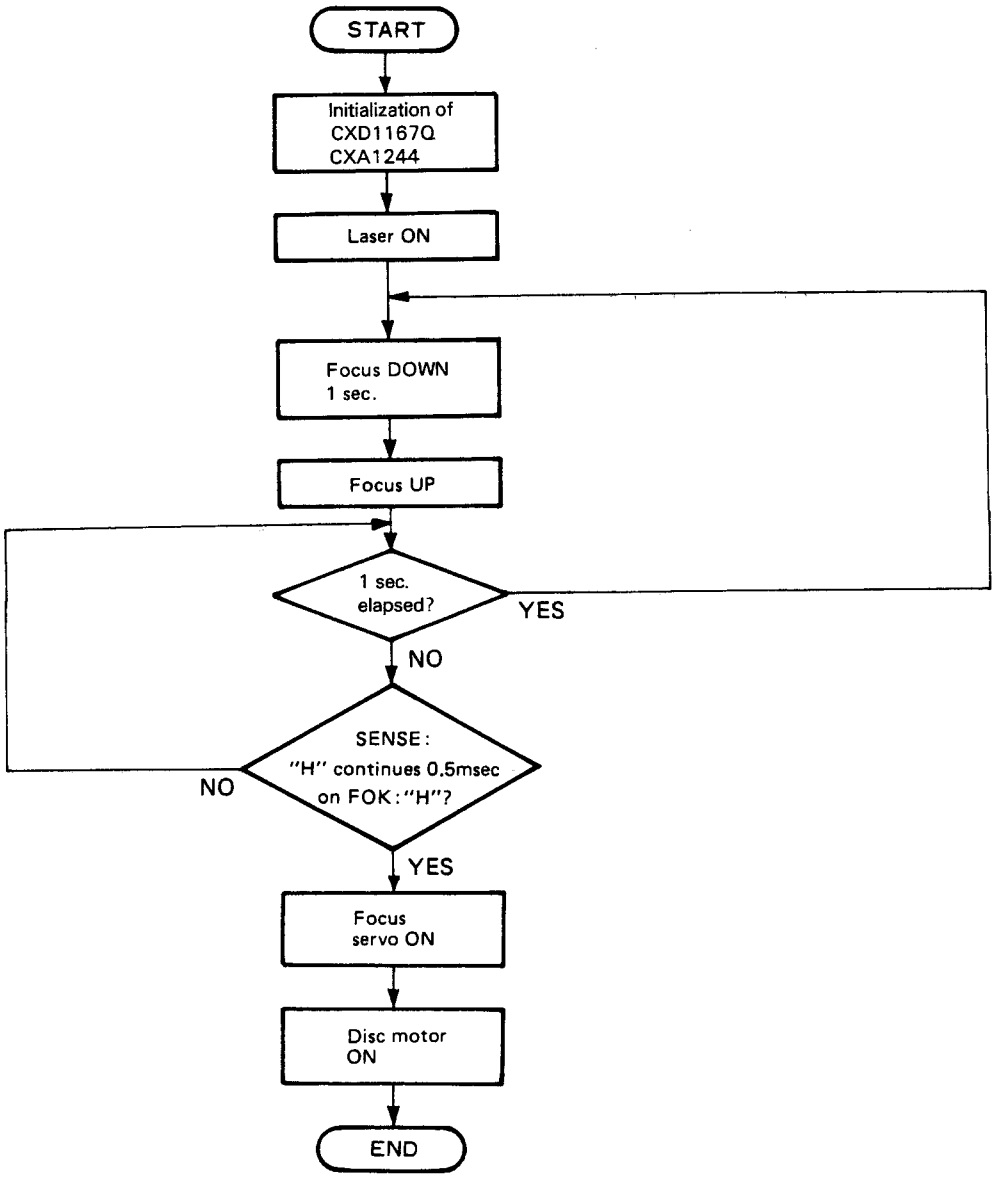
• Flowchart from tray OPEN status after power ON



SLT : Pickup sled limit switch
CLS : Tray close detect switch
OPEN : Tray open detect switch

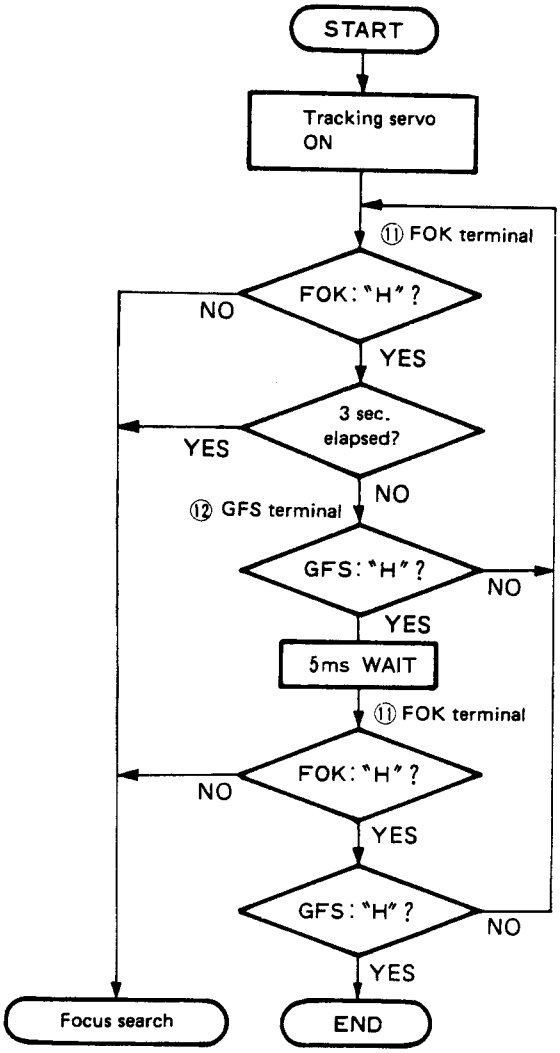
CIRCUIT DESCRIPTION

• **Focus search & focus servo ON**

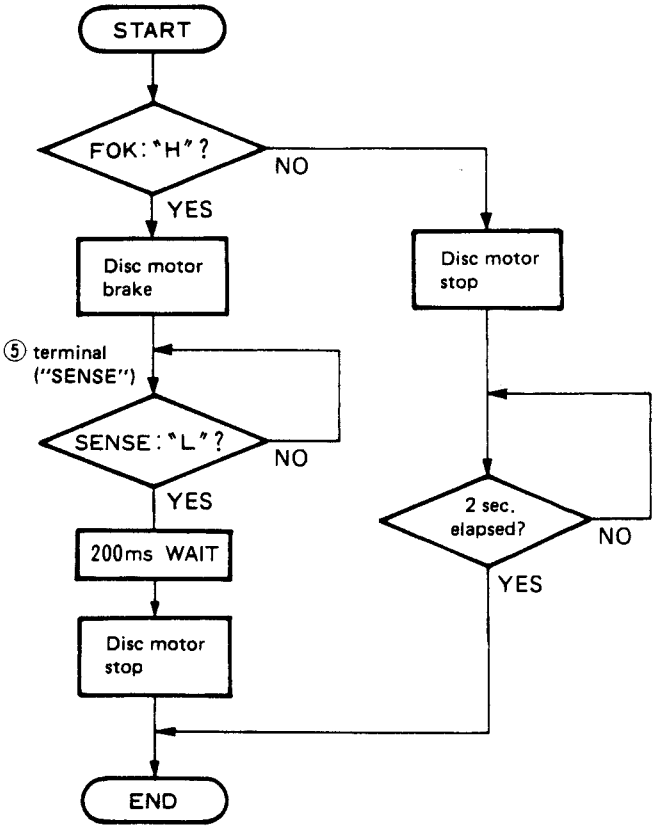


CIRCUIT DESCRIPTION

• **Tracking servo ON**

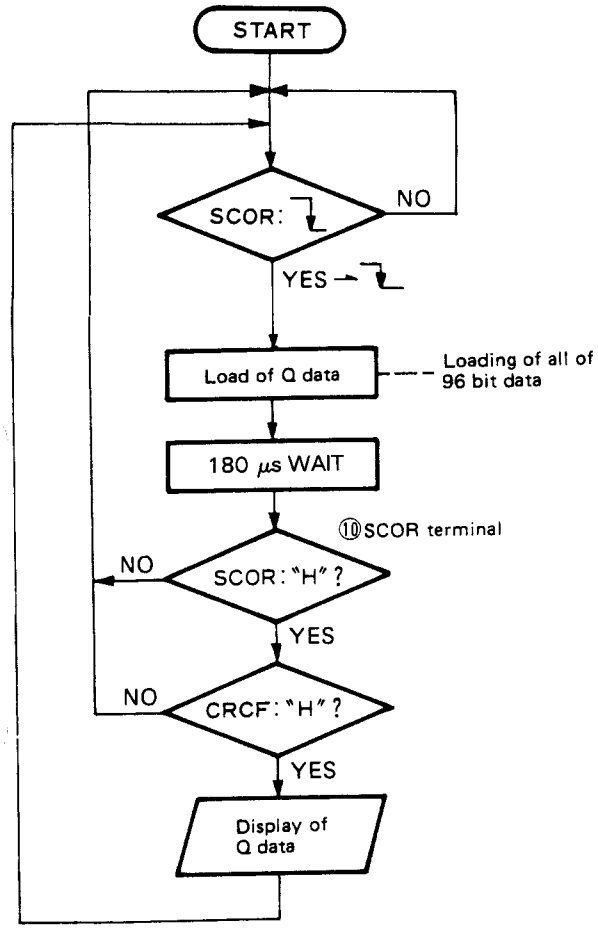


• **Disc motor STOP**

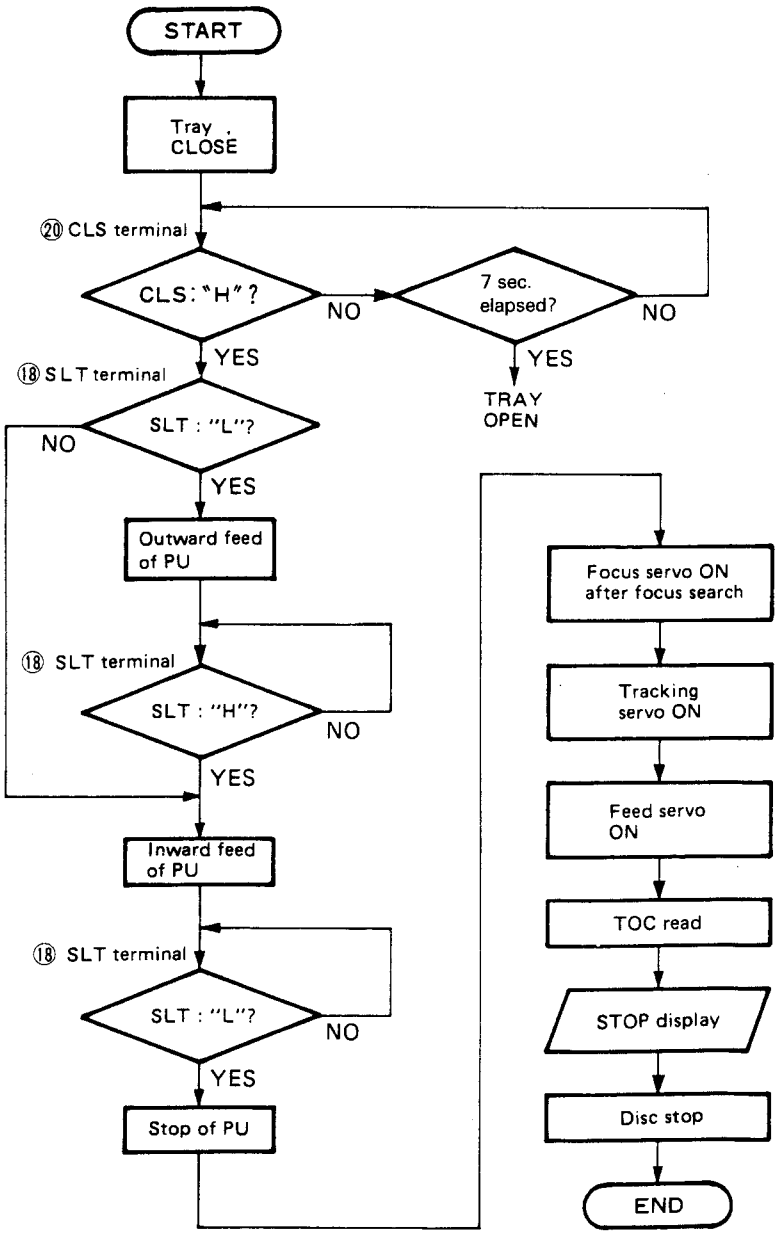


CIRCUIT DESCRIPTION

• From loading of Q data to display



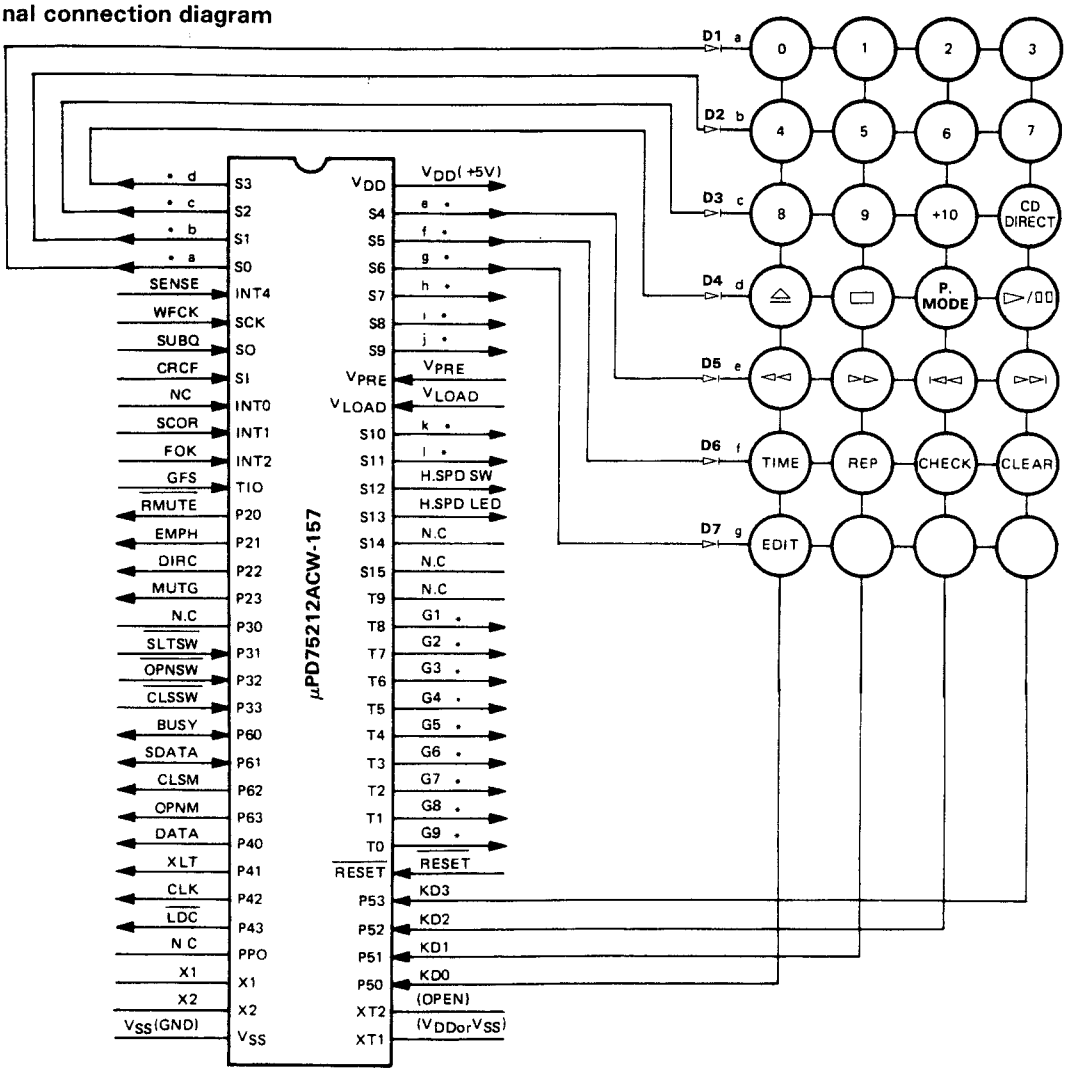
• In a usual case, since the tray was pushed when the tray is OPEN until STOP display is made.



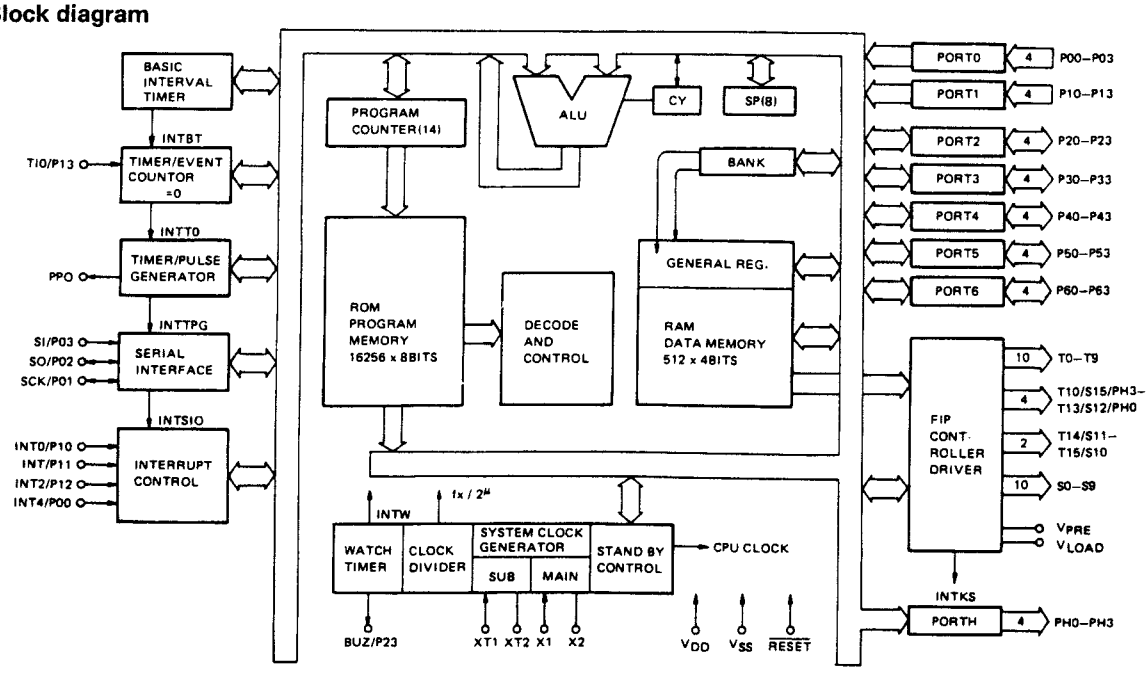
CIRCUIT DESCRIPTION

3. Microprocessor: μPD75212ACW-157 (X32-: IC15)

3-1. Terminal connection diagram



3-2. Block diagram



CIRCUIT DESCRIPTION

3-3. Explanation of terminals

Terminal No.	Terminal Name	I/O	Function Name	Function
1 ~ 4	S3 ~ S0	O	d ~ a	FL segment control terminals (also used for key scan signals).
5	P00/INT4	I	SENSE	Signal detection terminal for SENSE signal from signal processor and servo ICs.
6	P01/$\overline{SCK}$	I	WFCK	Q data read clock input terminal.
7	P02/SO	I	SUBQ	Q data input terminal.
8	P03/SI	I	CRCF	Q data CRC check result input terminal. ("H" : OK)
9	P10/INT0	I	–	Not used (GND).
10	P11/INT1	I	SCOR	Sub-code frame sync detection signal input terminal.
11	P12/INT2	I	FOK	Input terminal for FOK signal from RF amp.
12	P13/TIO	I	GFS	Frame sync signal input terminal. ("H" : Frame sync)
13	P20	O	$\overline{RMUTE}$	Analog muting control terminal. (Active "L")
14	P21	O	EMPH	Deemphasis control terminal. (Active "H")
15	P22	O	DIRC	DIRC terminal of servo IC.
16	P23	O	MUTG	MUTE terminal of signal processor IC. (Active "H")
17	P30	–	–	Not used.
18	P31	I	$\overline{SLTSW}$	Sled limit switch. (Innermost position : "L")
19	P32	I	$\overline{OPNSW}$	Tray open switch. (Open : "L")
20	P33	I	$\overline{CLSSW}$	Tray close switch. (Close : "L")
21	P60	I/O	BUSY	Serial BUSY signal input/output terminal.
22	P61	I/O	SDATA	Serial DATA signal input/output terminal.
23	P62	O	CLSM	Tray motor close terminal.
24	P63	O	OPNM	Tray motor open terminal.
25	P40	O	DATA	Signal processor and servo IC control output terminal.
26	P41	O	XLT	Signal processor and servo IC control output terminal.
27	P42	O	CLK	Signal processor and serco IC control output terminal.
28	P43	O	$\overline{LDC}$	Laser ON/OFF signal output terminal. (Active "L")
29	PPO	–	–	Not used.
30, 31	X1, X2	I/O	X1, X2	System clock input/output terminals.
32	VSS	–	VSS	GND.
33, 34	XT1, XT2	–	–	Not used.
35 ~ 38	P50 ~ P53	I	KD0 ~ KD3	Input terminals for key return signals from key matrix.
39	RESET	I	$\overline{RESET}$	Reset input terminal. (Active "L")
40 ~ 48	T0 ~ T8	O	G9 ~ G1	FL digit control terminals.
49 ~ 51	T9 ~ T11	O	–	Not used.
52	S13	O	H.SPD LED	Double-speed play mode display LED. (Active "H")
53	S12	O	H.SPD SW	Double-speed play mode selector switch. (Active "H")
54, 55	S11, S10	O	l, k	FL segment control terminals.
56	VLOAD	I	VLOAD	FL driver negative power supply. (–30V)
57	VPRE	I	VPRE	FL predriver power supply.
58 ~ 63	S9 ~ S4	O	j ~ e	FL segment control terminals. (Also used for key-scan signals)
64	VDD	I	VDD	Power supply. (+5V)

CIRCUIT DESCRIPTION

4. RF amplifier: CXA1081S (X32: IC1)

General

The CXA1081S is an IC developed for use in Compact Disc players. It incorporates a 3-spot optical pickup RF output amplifier, a focusing error amplifier, a tracking error amplifier, and other signal processing circuitry, such as focus OK, mirror, detect, and EFM comparator circuits, as well as a laser diode APC (Automatic Power Control) circuit.

Features

- Operates on a signal +5V power supply, as well as on a ±5V dual-voltage power supply.
- Low power consumption (100mW with ±5V, 50mW with +5V).
- An APC circuit which accepts either a P-sub or N-sub laser diode.
- A minimum of external parts required.
- A disc defect detector circuit for improved playability.

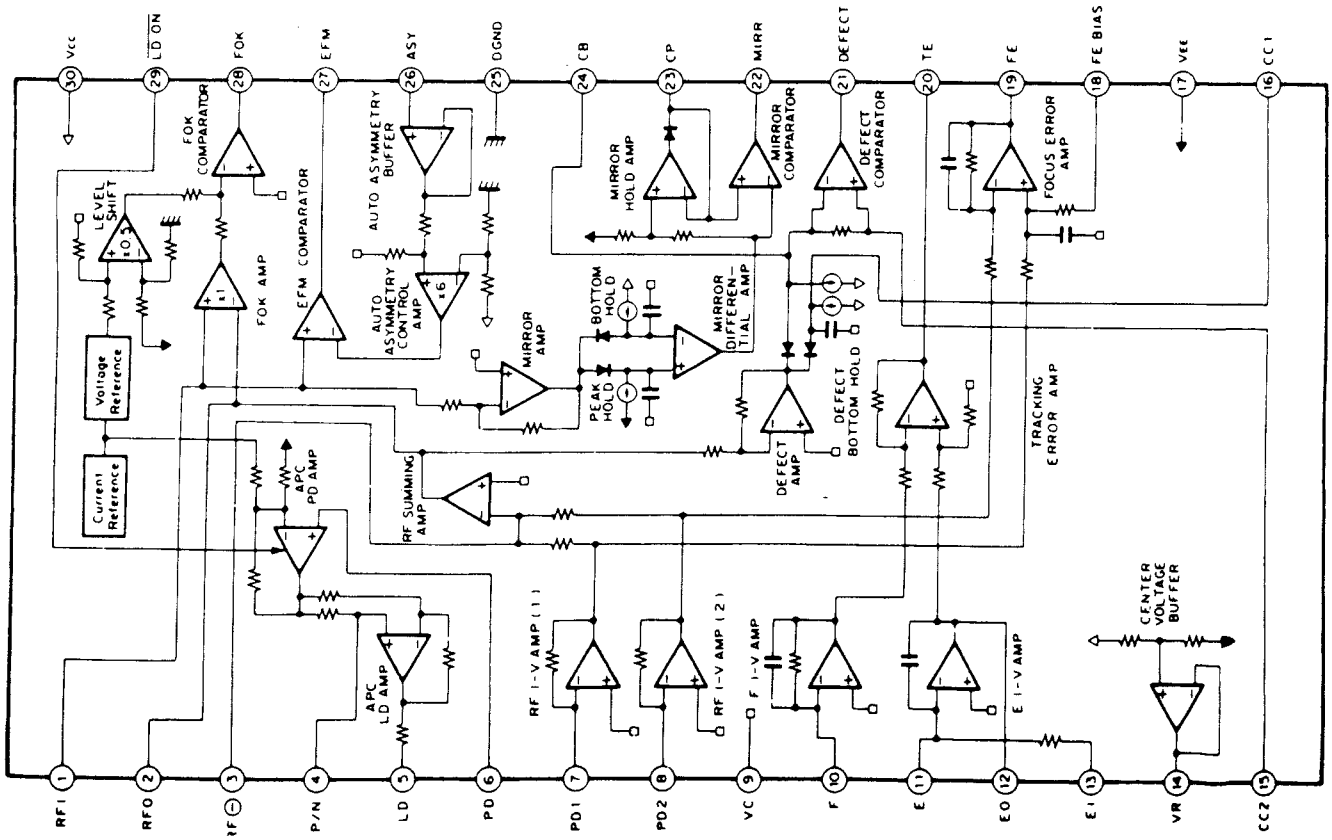
Structure

Bipolar silicon monolithic IC.

Functions

- RF amplifier
- Focus OK detector circuit
- Mirror detector circuit
- Tracking error amplifier
- Defect detector circuit
- APC circuit
- EFM comparator
- Auto asymmetry control amplifier

4-1. Block diagram



CIRCUIT DESCRIPTION

4-2. Pin functions (V_{CC} = 2.5V, V_{EE} = D_{GND} = –2.5V, VC = GND)

Pin No.	Pin name	I/O	DC voltage (V)	Function
1	RFI	I	0	Input pin for the C-coupled signal output from the RF summing amplifier.
2	RFO	O	V_{RFO}	RF summing amplifier output pin. Used as the check point for the eye pattern.
3	RF⊖	I	0	RF summing amplifier feedback input pin.
4	P/N	I	0 (VC)	P-sub/N-sub select pin for the LD (Laser Diode). (DC voltage : in N-sub mode)
5	LD	O	–1.8	* APC LD amplifier output pin. (DC voltage : PD open in N-sub mode)
6	PD	I	0	* APC LD amplifier input pin. (DC voltage : open)
7	PD1	I	0	RF I-V amplifier (1) inverted input pin. Current input by connecting to the photodiode A + C terminal.
8	PD2	I	0	RF I-V amplifier (2) inverted input pin. Current input by connecting to the photodiode B + D terminal.
9	VC	–	0	Connected to GND when using a positive (+)/negative (–) dual-voltage power supply. Connected to VR (pin 14) when using a single-voltage power supply.
10	F	I	0	F I-V amplifier inverted input pin. Current input by connecting to the photodiode F terminal.
11	E	I	0	E I-V amplifier inverted input pin. Current input by connecting to the photodiode E terminal.
12	EO	O	0	E I-V amplifier output pin.
13	EI	I	0	E I-V amplifier feedback input pin. For E I-V amplifier gain adjustment.
14	VR	O	V_{CVO}	DC voltage output pin of (V_{CC} + V_{EE})/2.
15	CC2	I	1.0	Input pin for the C-coupled signal output from the defect bottom hold.
16	CC1	O	1.2	Defect bottom hold output pin.
17	V_{EE}	–	–2.5	Connected to the negative power supply when using a positive (+)/negative (–) dual-voltage power supply. Connected to GND when using a single-voltage power supply.
18	FF BIAS	I	0	Bias pin on the focus error amplifier non-inverted side. For CMR adjustment of the focus error amplifier.
19	FE	O	V_{FEO}	Focus error amplifier output pin.
20	TE	O	V_{TEO}	Tracking error amplifier output pin.
21	DEFECT	O	V_{DFCTL}	Defect comparator output pin. (DC voltage : connected to a 10 k-ohm load)
22	MIRR	O	V_{MIRL}	Mirror comparator output pin. (DC voltage : connected to a 10 k-ohm load)
23	CP	I	–1.3	Mirror hold capacitor output pin. Mirror comparator non-inverted input.
24	CB	I	0	Defect bottom hold capacitor connect pin.
25	DGND	–	–2.5	Connected to GND when using a positive (+)/negative (–) dual-voltage power supply. Connected to GND (V_{EE}) when using a single-voltage power supply.
26	ASY	I	–	Auto asymmetry control input pin.
27	EFM	O	V_{EFMH}	EFM comparator output pin. (DC voltage : connected to a 10 k-ohm load)
28	FOK	O	V_{FOKL}	FOK comparator output pin. (DC voltage : connected to a 10 k-ohm load)
29	LD ON	I	–2.5 (D_{GND})	LD ON/OFF select pin. (DC voltage : when LD ON)
30	V_{CC}	–	2.5	Positive power supply.

* APC : Automatic Power Control

CIRCUIT DESCRIPTION

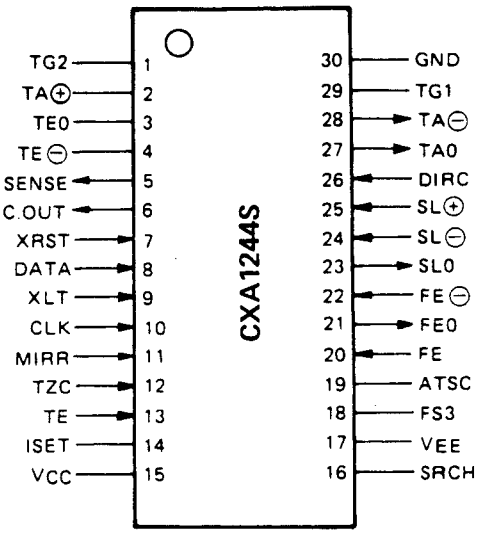
5. Servo control: CXA1244S (X32: IC2)

CXA1244S is a bipolar IC developed for servo of compact disc (CD) players, and it provides the following functions.

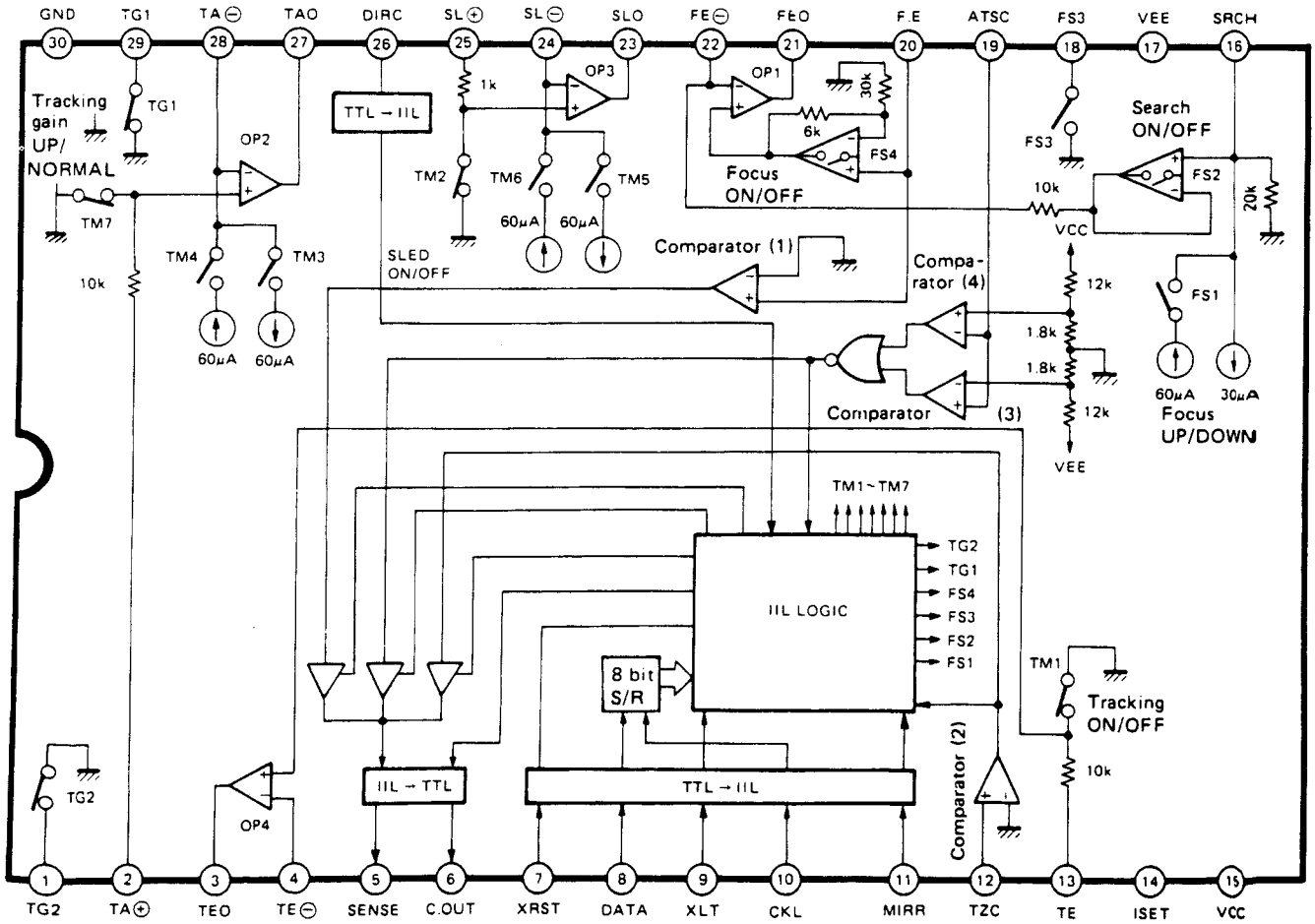
- Focus control (search ON/OFF, gain control)
- Tracking control (servo ON/OFF, single track jump, multiple track jump, gain control, phase compensation control, brake circuit)
- Sled control (servo ON/OFF, fast forward, fast reverse)

Servo function of each of focus, tracking and sled as well as random access operation are realized through control by microcomputer. Furthermore, the serial data bus can be shared with CX23035.

5-1. Pin connection diagram



5-2. Block diagram



CIRCUIT DESCRIPTION

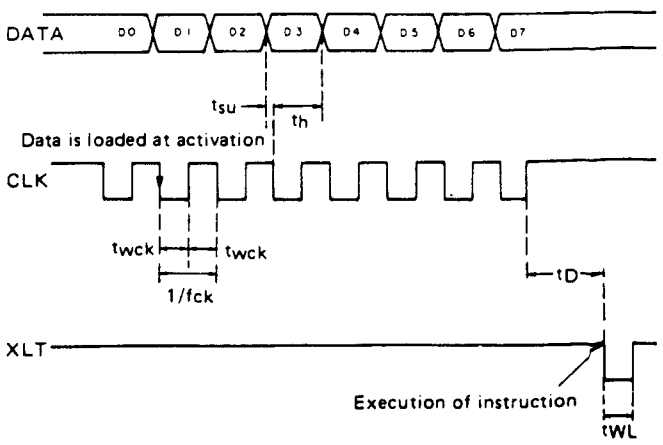
5-3. Pin functions

Pin No.	Pin name	I/O	Function
1	TG2		Trackingamplifier gain switching terminal. GND level.
2	TA ⊕		Non-inverted input of operational amplifier 2.
3	TE0		Output of operational amplifier 4.
4	TE ⊖	O	Inverted input of operational amplifier 4.
5	SENSE	O	Output of SSP internal status that corresponds to ADDRESS of CPU → SSP. (Changes in accordance with ADDRESS content of internal serial register.) See Note 1.
6	C. OUT	O	Signal output for counting number of tracks at the time of high speed access.
7	XRST	I	All internal registers are cleated when CPU → SSP "L". Connected with CPU RESET. See Note 2.
8	DATA	I	Serial data transmission of CPU → SSP. Input is made from LSB, D0 ~ D7.
9	XLT	I	Latch of serial data of CPU → SSP. (The contents of internal serial register are transmitted to each address decoded latch.) Transmission at "L". Change to "H" occurs immediately after execution because no edge trigger is produced.
10	CLK	I	CPU → SSP serial data transmission block. Data is read at falling. "H" level before and after transmission.
11	MIRR	I	Mirror signal input from RF amplifier.
12	TZC	I	Tracking error signal is input with C couple. The time constant is determined by one single track jump, but it is usually around 2kHz.
13	TE	I	Tracking error signal input.
14	ISET		Setting of current level for determining focus search voltage, tracking jump voltage and thread feed voltage.
15	Vcc		Power supply terminal. Normally –5V.
16	SRCH		The condenser for determining the time constant of charge/discharge waveform for focus search is connected.
17	VEE		Power supply terminal. Normally –5V.
18	FS3		Focus amplifier gain switching terminal. GND level.
19	ATSC		Such information that a mechanical shock was applied to the player is input. Simply, a tracking error is input through BPF.
20	FE	I	Input of focus error signal.
21	FE0	O	Output of operational amplifier 1.
22	FE ⊖	I	Inverted input of operational amplifier 1.
23	SL0	O	Output of operational output 3.
24	SL ⊖	I	Inverted input of operational amplifier 3.
25	SL ⊕	I	Non-inverted input of operational amplifier 3.
26	DIRC	I	Used at the time of one track jump. Normally "H". The direction of the track jump pulse is reversed with "L". Setting is made in the normal tracking mode by changing to "H". "L" for a fixed length of time with detection of activation, deactivation of TZC.
27	TA0	O	Output of operational amplifier 2.
28	TA ⊖	O	Inverted input of operational amplifier 2.
29	TG1		Tracking amplifier gain switching terminal. GND level.
30	GND		GND terminal of IC.

Note 1 : SENSE terminal output

Serial data upper 4 bits	ADDRESS content	SENSE terminal output	Explanation
0000	FOCUS CONTROL	FZC	"H" when focus zero cross, Focus error voltage is 0V or higher. Used at the time of FOCUS PULL operation.
0001	TRACKING CONTROL	AS	"H" when the ATSC input level exceeds the wind comparator level (VTH = ±VCC x 13%). But this is not used in this equipment.
0010	TRACKING MODE	TZC	Judgement output of positive or negative of tracking zero cross, tracking error. When used at the time of single track jump, DIRC is reduced to "L" on detection of TZC ↑, in FWD JUMP or on detection of TZC ↓ in REV JUMP.

Note 2 : Digital unit timing chart



CIRCUIT DESCRIPTION

6. Digital Signal Processor: CXD1167Q (X32:IC3)

General

The CXD1167Q is a digital signal processing LSI for Compact Disc player, and has the following functions.

- Bit clock reproduction by an EFM-PLL circuit
- EFM data demodulation
- Frame sync signal detection, protection and insertion
- Powerful error detection and correction
- Interpolation with an average value, or by holding the previous value
- Demodulation of a sub code signal, error detection of a sub code Q
- Spindle motor CLV servo
- 8-bit tracking counter
- CPU interface with a serial bus
- Sub code Q register
- Digital filter
- Digital audio interface output

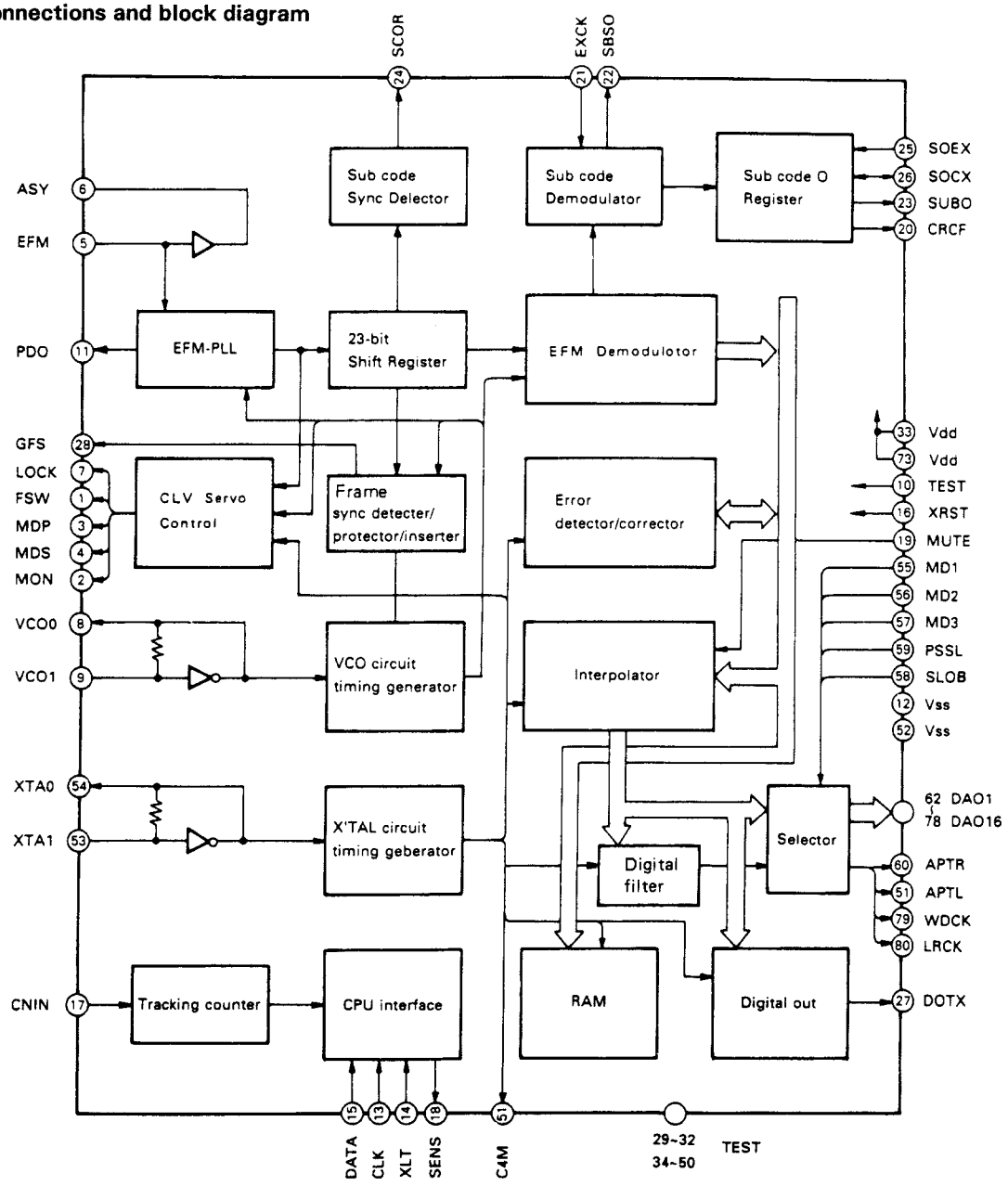
Features

- All digital signals used in playback can be processed using only a single chip.
- An aperture-correction digital filter is built-in.

Structure

CMOS IC

6-1. Pin connections and block diagram



CIRCUIT DESCRIPTION

6-2. Pin functions

Pin No.	Pin name	I/O	Function
1	FSW	O	Time constant switching output of output filter of spindle motor.
2	MON	O	ON/OFF control output of spindle motor.
3	MDP	O	Drive output of spindle motor. Rough speed control in CLV-S mode and phase control in CLV-P mode.
4	MDS	O	Drive output of spindle motor. Speed control in CLV-P mode.
5	EFM	I	EFM signal input from RF amplifier.
6	ASY	O	Output for controlling the slice level to EFM signal.
7	LOCK	O	Samples the GFS signal with WFCK/16, and outputs "H" when the level is high. When it is "L" for eight times, in arrow, outputs "L".
8	VCOO	O	VCO output. f = 8.6436MHz when locked to EFM signal.
9	VCOI	I	VCO input.
10	TEST	I	(0V).
11	PDO	O	Phase comparison output of EFM signal and VCO/2.
12	Vss	–	GND (0V).
13	CLK	I	Serial data transmission clock input from CPU. Data is latched at rising edge of a clock.
14	XLT	I	Latch input from CPU. Data (serial data from CPU) from the 8 bit shift register is latched in each register.
15	DATA	I	Serial data input from CPU.
16	XRST	I	System reset input. Reset at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	output of internal status in correspondence to the address.
19	MUTG	I	Muting input. In the case when ATTM of internal register A is "L". Normal status when MUTG is "L" or soundless state when it is "H".
20	CRCF	O	Output of result of CRC check of cub code Q.
21	EXCK	I	Clock input for sub code serial output.
22	SBSO	O	Sub code serial output.
23	SUBQ	O	Sub code Q output.
24	SCOR	O	Sub code sync S0 + S1 output.
25	SQCK	I/O	Sub code Q read-off clock.
26	SQEX	I	SQCK select input.
27	DOTX	O	DIGITAL OUT output.
28	GFS	O	Display output of frame sync lock status.
29	DB08	I/O	H or L position. Don't open circuit.
30	DB07	I/O	H or L position. Don't open circuit.
31	DB06	I/O	H or L position. Don't open circuit.
32	DB05	I/O	H or L position. Don't open circuit.
33	VDD	–	Power supply (+5V).
34	DB04	I/O	H or L position. Don't open circuit.
35	DB03	I/O	H or L position. Don't open circuit.
36	DB02	I/O	H or L position. Don't open circuit.
37	DB01	I/O	H or L position. Don't open circuit.
38	RA01	O	H or L position. Don't open circuit.
39	RA02	O	H or L position. Don't open circuit.
40	RA03	O	H or L position. Don't open circuit.
41	RA04	O	H or L position. Don't open circuit.
42	RA05	O	H or L position. Don't open circuit.
43	RA06	O	H or L position. Don't open circuit.

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Function
44	RA07	O	H or L position. Don't open circuit.
45	RA08	O	H or L position. Don't open circuit.
46	RA09	O	H or L position. Don't open circuit.
47	RA10	O	H or L position. Don't open circuit.
48	RA11	O	H or L position. Don't open circuit.
49	RAWE	O	H or L position. Don't open circuit.
50	RACS	O	H or L position. Don't open circuit.
51	C4M	O	Crystal dividing output. f = 4.2336MHz
52	Vss	–	GND (0V).
53	XTAI	I	Crystal oscillator input. f = 8.4672MHz or 16.9344MHz depending on the mode selected.
54	XTAO	O	Crystal oscillator output. f = 8.4672MHz or 16.9344MHz depending on the mode selected.
55	MD1	I	Mode select input 1.
56	MD2	I	Mode select input 2.
57	MD3	I	Mode select input 3.
58	SLOB	I	Audio data output code select input. 2's complement output when "L", offset binary output when "H".
59	PSSL	I	Audio data output mode select input. Serial output when "L", parallel output when "H".
60	APTR	O	Aperture compensation control output. "H" when R-ch
61	APTL	O	Aperture compensation control output. "H" when L-ch
62	DA01	O	DA01 (parallel audio data LSB) output when PSSL = "H", C1F1 output when PSSL = "L".
63	DA02	O	DA02 output when PSSL = "H", C1F2 output when PSSL = "L".
64	DA03	O	DA03 output when PSSL = "H", C2F1 output when PSSL = "L".
65	DA04	O	DA04 output when PSSL = "H", C2F2 output when PSSL = "L".
66	DA05	O	DA05 output when PSSL = "H", C2FL output when PSSL = "L".
67	DA06	O	DA06 output when PSSL = "H", C2PO output when PSSL = "L".
68	DA07	O	DA07 output when PSSL = "H", RFCK output when PSSL = "L".
69	DA08	O	DA08 output when PSSL = "H", WFCK output when PSSL = "L".
70	DA09	O	DA09 output when PSSL = "H", PLCK output when PSSL = "L".
71	DA10	O	DA10 output when PSSL = "H", UGFS output when PSSL = "L".
72	DA11	O	DA11 output when PSSL = "H", GTOP output when PSSL = "L".
73	VDD	–	Power supply (+5V).
74	DA12	O	DA12 output when PSSL = "H", RAOV output when PSSL = "L".
75	DA13	O	DA13 output when PSSL = "H", C4LR output when PSSL = "L".
76	DA14	O	DA14 output when PSSL = "H", $\overline{C210}$ output when PSSL = "L".
77	DA15	O	DA15 output when PSSL = "H", C210 output when PSSL = "L".
78	DA16	O	DA16 (parallel audio data MSB) output when PSSL = "H", DATA output when PSSL = "L".
79	WDCK	O	Strobe signal output. 176.4kHz when DF is ON, 88.2kHz with CXD1167Q or when DF is OFF.
80	LRCK	O	Strobe signal output. 88.2kHz when DF is ON, 44.1kHz with CXD1167Q or when DF is OFF.

Notes :

C1F1 : Error correction status monitor output for C1 decode.

C1F2 : Error correction status monitor output for C1 decode.

C2F1 : Error correction status monitor output for C2 decode.

C2F2 : Error correction status monitor output for C2 decode.

C2FL : Correction status output. Goes "H" when the currently corrected C2 series data cannot be corrected.

C2PO : C2 pointer signal. Synchronized to the audio data output.

RFCK : Read frame clock output. 7.35MHz when locked to the crystal line.

WFCK : Write frame clock output. 7.35MHz when locked to the crystal line.

$\overline{PLCK}$: VCO/2 output. f = 4.3218MHz when locked to the EFM signal.

UGFS : Non-protected frame sync pattern output.

GTOP : Frame sync protect status display output.

RAOV : ±4 frame jitter absorption RAM overflow and underflow display output.

C4LR : Strobe signal. 352.8kHz when DF is ON, 176.4kHz with CXD1167Q or DF is OFF.

$\overline{C210}$: C210 invert output.

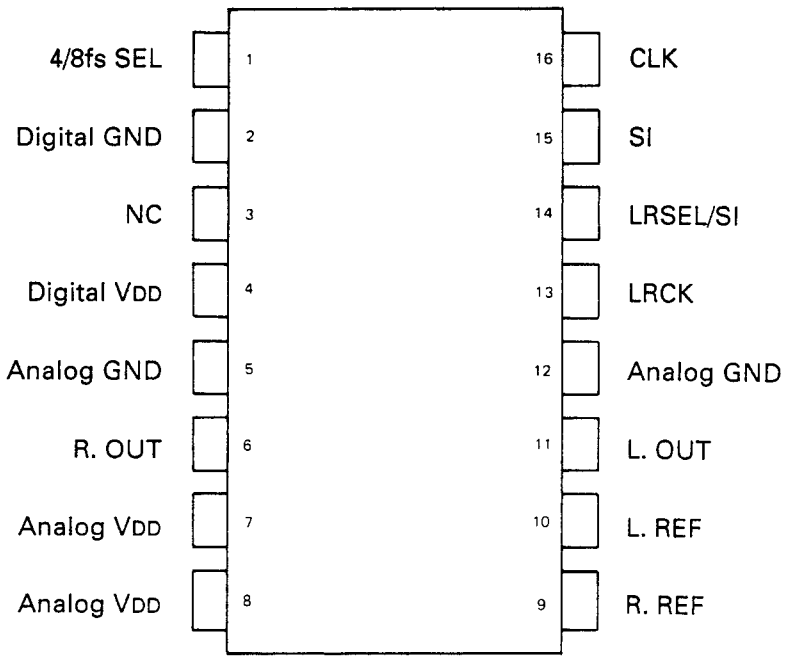
C210 : Bit clock output. 4.2336MHz when DF is ON, 2.1168MHz with CXD1167Q or when DF is OFF.

DATA : Audio signal serial data output.

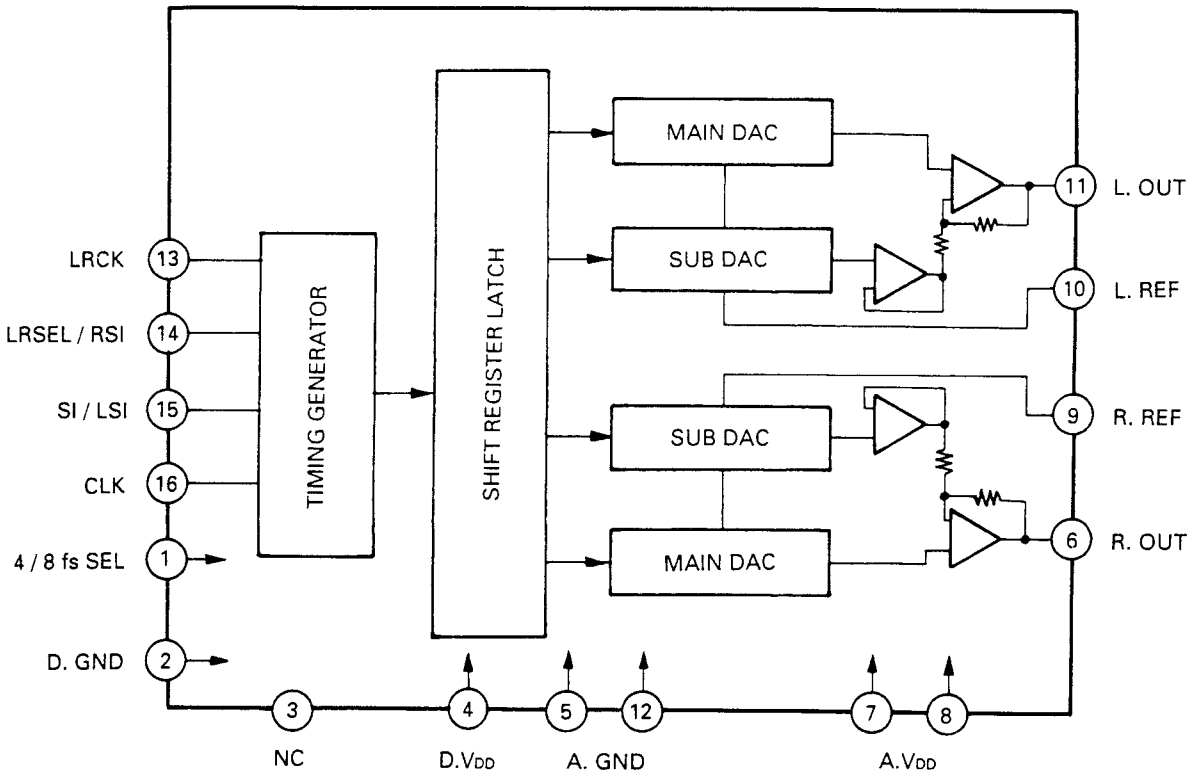
CIRCUIT DESCRIPTION

7. D/A Converter: μPD6376CX (X32: IC11)

7-1. Terminal connection diagram



7-2. Block diagram



CIRCUIT DESCRIPTION

7-3. Explanation of terminals

Terminal No.	Terminal name	I/O	Function
1	4/8fs SEL	I	When this terminal is set to "Low" or "Open", time-sharing input of the L-ch and R-ch data will take place from pin 15. When set to "High", the L-ch data will be input from pin 15, while the R-ch data will be input from pin 14. (Pull-down is provided inside the IC by means of a 100kΩ resistor.)
2	Digital GND	–	GND terminal of the logic section.
3	NC	–	Non connection.
4	Digital VDD	–	Power supply terminal for the logic section.
5	Analog GND	–	GND terminal of the analog section.
6	R-ch OUTPUT	O	Output terminal for R-ch analog signals.
7, 8	Analog VDD	–	Power supply terminals for the analog section.
9	R-ch Voltage Reference	–	Reference voltage terminals. Normally, they are connected to A. GND by way of a capacitor to reduce the impedance at high frequencies.
10	L-ch Voltage Reference		
11	L-ch OUTPUT	O	Output terminal for L-ch analog signals.
12	Analog GND	–	GND terminal for analog section.
13	Left/Right Clock WORD Clock	I	When pin 1 is either "Low" or "Open", serves as the input terminal for LEFT/RIGHT identification signals for the input data. When pin 1 is "High", it serves as an input terminal for WORD identification signals for the input data.
14	Left/Right Selection R-ch Serial Input	I	When pin 1 is either "Low" or "Open", this terminal selects the left and right polarities for the L-ch and R-ch CK signals. If L-ch data is to be input when the L/R CK signals are "High", the L/R SEL terminal is set to "Low", whereas, if L-ch data is to be input when the L/R CK signals are "Low", the terminal is set to "High". When pin 1 is "High", the terminal serves as the input terminal for R-ch serial data.
15	Serial Input L-ch Serial Input	I	When pin 1 is either "Low" or "Open", the terminal serves as that for inputting serial data of the L-ch and R-ch, alternately. When pin 1 is "High", it serves as an input terminal for L-ch serial data.
16	CLOCK	I	Input terminal for the READ clock of serial input data.

CIRCUIT DESCRIPTION

DECK SECTION

1. Initial Setting

When the power cord is disconnected, then connected again, initial setting is entered.

Item	Setting
DOLBY $\overline{R/P}$	PLAY
DOLBY ON/$\overline{OFF}$	OFF
$\overline{R/P}$	PLAY
$\overline{A/B}$	A
EQ SPEED	NORMAL
$\overline{REC\ MUTE}$	ON
$\overline{LINE\ MUTE}$	ON
$\overline{MUTE}$	ON
$\overline{BIAS}$	OFF
VU/$\overline{CCRS}$	VU
NOR/$\overline{CrO_2}$	NORMAL
$\overline{NOR}/CrO_2$	NORMAL
X FADE	OFF
$\overline{FL}$	OFF
SELECTOR	TUNER
ELECTROMOTIVE VOLUME	-15 dB

2. Test Mode

(1) Setting and canceling

Setting ①

Strap the test pins at TP16 and TP17 on the X28 board with a diode (16 ⇥ 17) to enter the TEST1 mode. When the PAUSE key is pressed or power to the system is switched OFF, the TEST1 mode is canceled.

Setting ② When the power cord is connected while the selector TAPE B key is held down, the TEST1 mode is entered. (The TEST mode cannot be entered by setting the TIMER REC switch to ON, however.) When the selector key is pressed or power to the system is switched OFF, the TEST1 mode is canceled.

Setting ③ Strap the test pins at TP12 and TP13 on the X28 board with a diode (13 ⇥ 12), and press the DOLBY NR key to enter the TEST2 mode. When the PAUSE key is pressed or power to the system is switched OFF, the TEST 2 mode is canceled.

(2) Operation specifications

(TEST1: Settings ① and ②)

A) PLAY operation test
Set the TIMER REC switch to OFF, and insert a cassette half in A, B DECK, Then, set system switch to ON.
About 4 seconds later A DECK acts in the order of FWD PLAY 5 seconds-HI SPEED 1.5 seconds-RVS PLAY 2 seconds-STOP.
Subsequently B DECK carries out an action similarly.

B) REC operation test (Setting ① only)
Set the TIMER REC switch to ON, and insert a recording possible cassette half in B DECK, Then, set sytem switch to ON.
About 4 seconds later B DECK does REC LEVEL -22 dB 3 seconds REC, REC LEVEL – ∞ dB 5 seconds REC. After that it returns a volume to REC start position and act 8 seconds PLAY and do STOP.

C) Deck A half detection ignore and FWD PLAY
When the A RVS PLAY key is pressed, the FWD PLAY mode is entered even if a cassette half is not installed in deck A.

D) Three seconds REC an PLAY
When the REC key is pressed, the REC mode is maintained for 3 seconds. Then, the tape is wound to the REC starting position and the PLAY mode is entered. When the REC key is set to OFF 3 seconds before the REC key is held down, the tape is wound to the REC starting position and the PLAY mode is entered.

E) REC VOL level
When power to the system is switched ON, the REC VOL level is set to —22 dB. When the REC LEVEL UP/DOWN key is pressed, the REC VOL level is set to — ∞, —22 dB, or 0 dB.

F) DIRECTION MODE SW test
When the ONE WAY MODE switch is set to ON, ◀A▷ ◁B▷ is displayed; when it is set to OFF, ◁A▷ ◁B▶ is displayed.

G) CCRS test
When the CCRS key is pressed, the REC level is set to 0 dB, the CCRS LED indicator blinks, and the REC PAUSE mode is entered. At that time, keys other than the B DECK STOP key are ineffective. When the STOP key is pressed, the CCRS LED indicator goes on and the CCRS setting state is entered. When the CCRS key is pressed with the CCRS LED indicator on the CCRS setting state is cancelled and the CCRS LED indicator goes off.

H) Key input allowable time and LINE MUTE during CCRS setting
Key input is allowed 2 seconds after power to the system is switched ON (usually after 4 seconds).
In the test mode, the line is muted during CCRS setting.

(TEST 2: Setting ③)

I) All LED indicators ON
All LED indicators go on for approximately 1.5 seconds after power to the system is switched. ON.

J) Half detection switch ignore
Decks A and B half switches are ignored.

K) PLAY-to-REC direct selection
When the REC key is pressed in the PLAY mode, the REC mode is entered.

L) Same as steops E) to H).

CIRCUIT DESCRIPTION

3. Key function

Key name	Function	Display
FWD PLAY "▶" (common to decks A and B)	With a cassette half, the tape is played in the forward direction. When this key is pressed during forward play, that one tune is repeated to play. While the other deck is in recording or recording pause, the operation of this key is disabled.	FWD PLAY "▶" indicator lights.
RVS PLAY "◀" (common to decks A and B)	With a cassette half, the tape is played in the reverse direction. When this key is pressed during reverse play, that one tune is repeated to play. While the other deck is in recording or recording pause, the operation of this key is disabled.	RVS PLAY "◀" indicator lights.
FF "▶▶" (common to decks A and B)	The tape is fast wound up to the right reel. When this key is pressed during play, the skip music scan is made, whereas when it is pressed during reverse recording, the re-recording standby mode is engaged.	
REW "◀◀" (common to decks A and B)	The tape is wound up to the left reel. When this key is pressed during play, the skip music scan is made, whereas when it is pressed during forward recording, the re-recording standby ode is engaged.	
STOP "■" (common to decks A and B)	All operation is stopped.	
REC "●/◆" (deck B only)	Recording is made in the current head direction. If in recording, ARM is engaged.	REC indicator lights (●). Flickers during ARM and lights after termination (❚❚ ●).
PAUSE "❚❚" (common to decks A and B)	If in recording, the recording pause mode is engaged, while if in play, the play pause mode is engaged.	PAUSE indicator lights (❚❚).
CCRS (deck B only)	The CD recording level is automatically adjusted in synchronization with the CD player.	CCRS indicator flickers at high pitch. It flickers at low pitch after the completion of level setting or during edit recording.
CRLS (B)	Automatically adjusts the recording level for each source. * This CRLS key can be used during A STOP, B STOP, or REC PAUSE, other than selector TAPE. Sampling is completed in about 20 seconds. The recording level is fixed when the REC or CRLS key is pressed during sampling. If no key data is entered, the level is canceled in about one second. The recording level is returned to the initial value (−15 dB) when the CRLS key is pressed continuously for three seconds.	The CRLS LED blinks rapidly during the recording level setting and lights continuously after level setting. The LED goes off when the selector is changed. The CRLS LED blinks slowly during the initial setting and goes off after setting.

CIRCUIT DESCRIPTION

Key name	Function	Display
NOR SPEED DUBBING	Dubbing is made from deck A to B at normal speed. When this key is pressed during normal dubbing, deck B enters ARM. When it is pressed again, normal dubbing is restored.	DUBB, NOR and (B) REC (●) indicators light. During ARM, REC indicator only flickers.
HIGH SPEED DUBBING	Dubbing is made from decks A to B at double speed. When this key is pressed during double-speed dubbing, deck B enters ARM.	DUBB, HIGH and REC (●) indicators light. During ARM, (B) REC indicator only flickers.
One way mode switch	A following operation mode is selected at the time of auto stop detection. ON ..... One-way operation OFF ..... Endless operation	
Timer REC switch	The power-ON operation mode is set. OFF ..... Play is made when provided with a cassette half. (Priority is given to deck A.) ON ..... Recording is made when provided with a cassette half.	
Dolby switch	The Dolby noise reduction mode is set. ON ..... Dolby B noise reduction ON OFF ..... Dolby noise reduction OFF	
Cassette half detection switch	This switch turns ON when provided with a cassette half. With this switch OFF, the operations of any key and the dubbing key of that deck are disabled. For deck B, the operations of the CCRS key is also disabled.	
Forward recording enable switch	This switch turns ON when provided with a click for enabling recording in the forward direction. With this switch OFF, the forward recording is disabled.	
Reverse recording enable switch	This switch turns ON when provided with a click for enabling recording in the reverse direction. With this switch OFF, the reverse recording is disabled.	

Function name	Key symbol	Function
Rewind play	"◀◀+▶" or "▶▶+◀"	After the tape is rewound up to the tape end, the first tune is searched for and then is played after its searching out.
Dash and play	◀◀+▶▶	When the no-tune state continues for more than 10 seconds during the play mode, the tape is cued. When the head of the next tune is thus scanned out, the play mode is restored. A full repeat function is also provided by means of the reverse mode switch. ON ... One-side full repeat, 8 times

CIRCUIT DESCRIPTION

4. OTHER FUNCTIONS

4-1. Synchronous recording (CD player and cassette deck, or turntable and cassette deck)

The deck can know the current recording source by analyzing the selector code from the amplifier at any time. In addition, after the recording mode is entered, the recording source does not change.

By virtue of these two principles, the deck can obtain synchronization by analyzing the code from the device from which recording is made at present.

(a) Synchronous operation between CD player and cassette deck

Deck status \ CD operation	Stop→play	Pause→play	Play→pause	Play→stop	Pause→stop	Play→tray open	Pause→tray open
Recording (in tape run)	Non change	Non change	ARM is entered. 4 seconds later, the recording pause mode is entered.	ARM is entered. 4 seconds later the tape stops.	←	←	←
ARM (auto recording mute)	ARM is stopped, and recording is made.	←	After the termination of the current ARM time, the recording pause mode is entered.	After the termination of the current ARM time, the stop mode is entered.	←	←	←
Recording pause	The recording mode is entered.	←	Non change	The stop mode is entered.	←	←	←

(b) Synchronous operation between turntable and cassette deck

Turntable operation \ Deck status	Arm up→down (mute ON→OFF)	Arm down→up (mute OFF→ON)	Arm return to rest
Recording (in tape run)	Non change	ARM is entered. After the termination of ARM time (4 seconds later), the recording pause mode is entered.	ARM is entered. After the termination of ARM time (4 seconds later), the stop mode is entered.
ARM (auto recording mute)	ARM is stopped. The recording mode is restored.	After the termination of the current ARM time, the recording pause mode is entered.	After the termination of the current ARM time, the stop mode is entered.
Recording pause	The recording mode is entered.	Non change	The stop mode is entered.

Note: In case of (a), the muting is canceled after the CD player plays or it delays 2.2 seconds after output of start code. The aiming is that even when the deck is in operation transit at start of the CD player, the head section of the recording is protected from being muted.

CIRCUIT DESCRIPTION

4-2. CCRS edit (deck B exclusive feature)

Synchronous recording operations are performed by combined use of a CD player, an amplifier and the deck.

(1)Normal recording

The CD player is entered to the play mode and the deck, to the recording mode. Thus, the deck operates in synchronization with the operation of the CD player.

The following operation is also feasible due to the process prior to recording.

- When CCRS is already set (CCRS indicator in lighting) Of the deck, the recording level is set to the preset value, on which recording is then made. During recording, the recording level cannot be varied.

(2)CCRS edit

(A)Fade out mode

Setting: Set the CD player to the track mode, and press the CCRS key of the deck

Operation:

- The deck issues the CCRS start code.
- When the CD player receives the CCRS start code, the CD player issues the CD standby code and enters the sampling operation to set the recording level.

Level setting.
CCRS indicator flickers at intervals of 0.25 second.

(a) Play is made for 15 seconds from the location of a length of 1 minutes prior to the end of tune Nos 1-3, or the end section of the final tune is played for 15 seconds.

- When the amplifier receives the CD standby code, its input selector is locked to the CD position to turn ON the $-\infty$ muting. When the deck receives the CD standby code, its electronic VR is set to "-6 dB" and at the same time the recording pause mode is entered to start the level detection.

(b) A-D conversion is made. The data to attenuate by the amount by which the set value is exceeded is sent to the electronic VR. This process is repeatedly performed until the CD standby code is received again.

- The CD player, after the termination of 15-second playback of the final tune, issues the CD standby code again to enter the process of a.
- When the deck receives the CD standby code of the second time, it terminates the level setting to perform the auto bias setting. After the completion of the auto bias setting, the deck enters the recording pause mode and at the same time issues the deck standby code.
- When the amplifier receives the deck standby code, the muting is turned OFF.

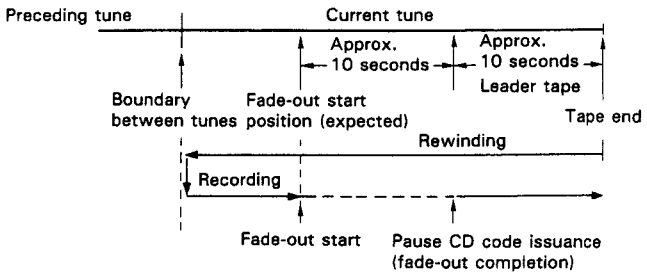
  When the CD player receives the deck standby code, it stops sampling to issue the CD start code. After 2.2 seconds, the CD player starts to play the tune of the smallest tune number.

- When the deck receives the CD start code, it enters the recording mode.
- The CD player issues the CD start code each time the tune number changes.
- When the deck receives the CD start code, it memorizes the then count value.
- When the deck detects the tape end, it operates depending upon the location of the boundary between the current tune and the preceding tune as follows:

1) When the boundary is located more than 20 seconds prior to the tape end...

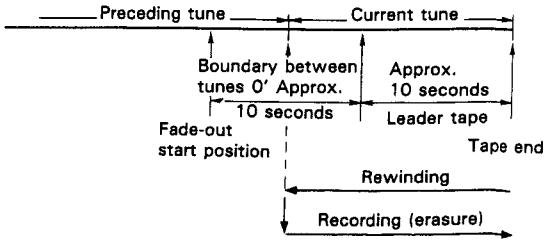
   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is re-entered and the play CD code is issued.

   When the location prior 20 seconds to the tape end is arrived at, the fade-out operation is started. Thus, when the electronic VR setting goes to $-\infty$, the pause CD code is issued.



2) When the boundary between tunes is located between the fade-out start position and the leader tape...

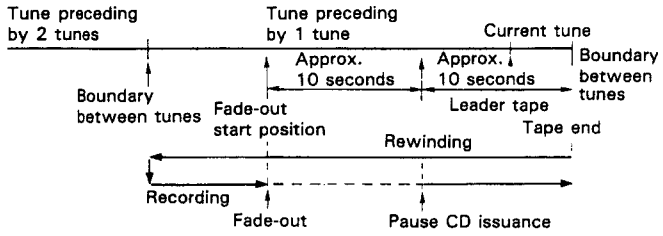
   The tape end code is issued and the tape is rewound to that location. Then, the recording mode is entered, and erasure is made up to the tape end with recording mute ON.



CIRCUIT DESCRIPTION

3) When the boundary between tunes is located in the leader tape section (except for the first tune)...

The tape end back code is issued, and the tape is rewound to the boundary between the tune preceding by two tunes and the tune just preceding by one tune. Then, the recording mode is entered, and the play CD code is issued. When the location prior 20 seconds to the tape end is arrived at, the fade-out operation starts. Thus, when the electronic VR setting goes to $-\infty$, the pause CD code is issued.



4) When the start position of the first tune is located in the leader tape section...

The tape end code is issued, and the subsequent reverse operation is performed as it stands.

- When the tape end is reached again after erasure or fade-out operation at previous item 1), 2) or 3), or when previous step 4) is at work, a following operation is performed.

①When reverse recording or oneway mode is engaged, or when the reverse side of the tape is disabled from recording...

stop code. The CCRS mode is canceled.

②Other than above item 1)

The reverse recording mode is entered. After ARM is thus applied for 10 seconds, the play CD code is issued to start the fade-in operation from $-\infty$.

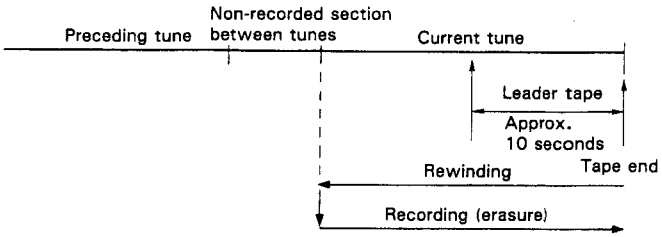
B) Erase mode

Setting: Set the CD player to the PGM mode, and after tune programming, press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(a) Fade out mode".
- When the CD player receives the deck standby code, it searches for the first programmed tune to issue the CD start code. After 2.2 seconds, play of that tune is started.
- When the deck receives the CD start code, it enters the recording mode.
- When the tune ends, the CD player issues the CD end code, and when the next tune starts, the CD player issues the CD start code.
- When the deck receives the CD end code and start code, it memorizes the then count values.
- When the deck detects the tape end, it performs depending upon the location of the boundary between tunes as follows:

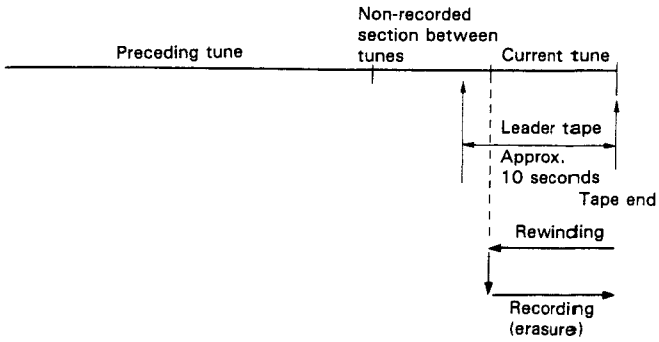
1) When play is made at present and the start position of that tune is prior to the leader tape section...

The tape end code is issued, and the tape is rewound to the start position of that tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).



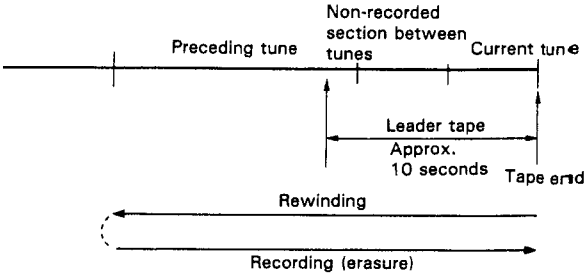
2) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is prior to the leader tape section...

The operation is the same as above 1).



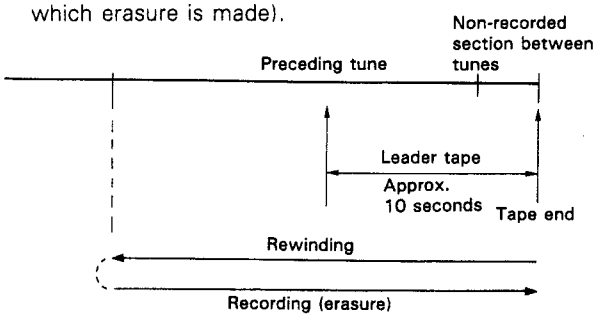
3) When play is made at present, the start position of that tune is located in the leader tape section and the end position of the preceding tune is also located in the leader tape section...

The tape end back code is issued, and the tape is rewound to the start position of the preceding tune. Then, the recording mode is entered with recording mute kept ON (in which erasure is made).



CIRCUIT DESCRIPTION

4) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is in the leader tape section...
The tape end code is issued, and the tape is rewound to the start position of the preceding tune. The recording mode is entered with recording mute kept ON (in which erasure is made).



5) When a non-recorded section between tunes is engaged at present and the end position of the preceding tune is prior to the leader tape section...
The pause CD code is issued, and the subsequent reverse operation is performed.

- When the tape end is reached again after erasure at previous item 1), 2), 3) or 4), or when previous step 5) is at work, a following operation is performed.

1) When reverse recording or oneway mode is engaged, or when the reverse side of tape is disabled from recording...
The CCRS mode is canceled.
2) Other than above 1)
The reverse recording move is entered. After ARM is thus applied for 10 seconds, the play CD code is issued.

(C) Edit mode

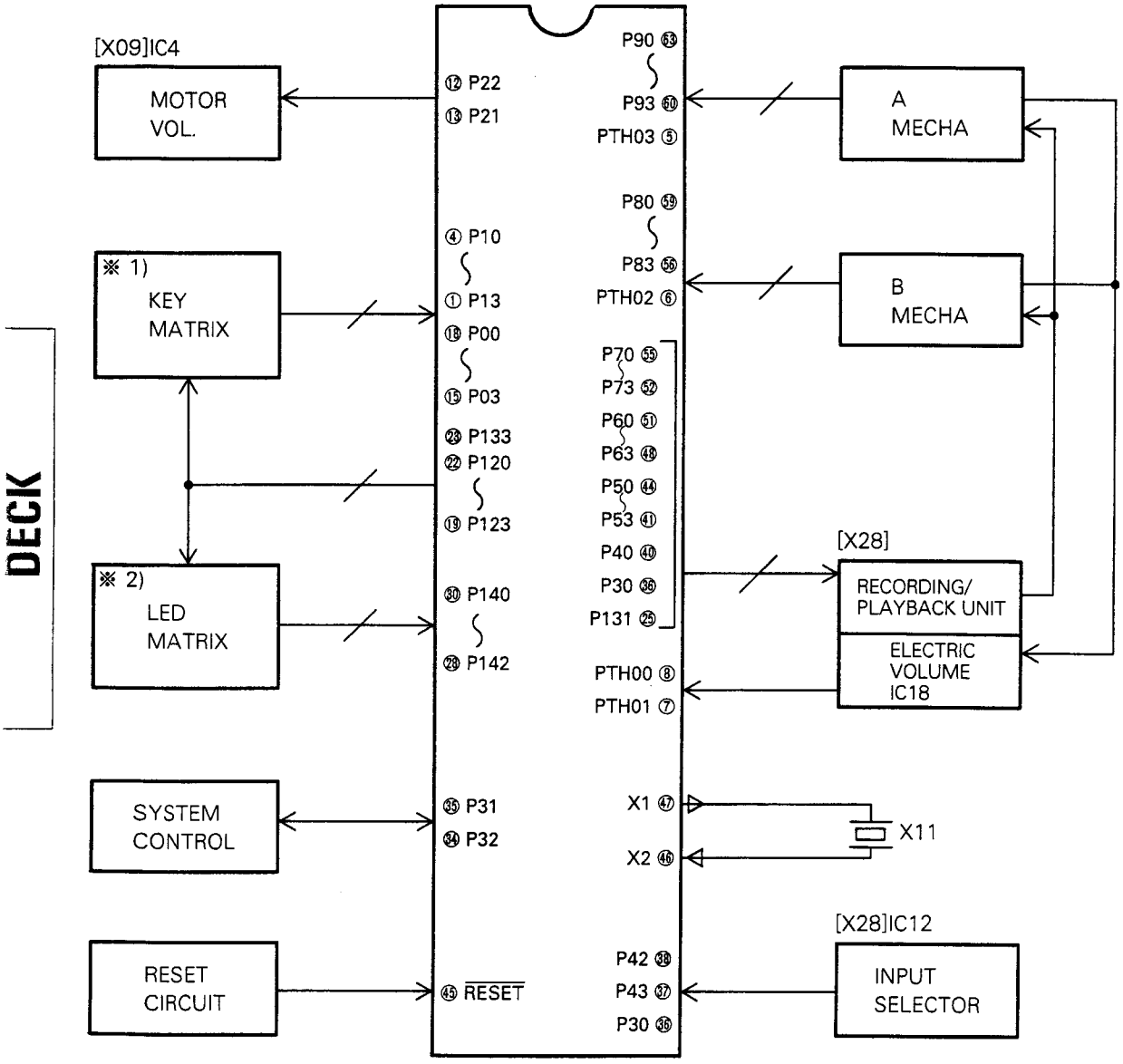
Setting: Press the EDIT key of the CD player, enter the tape length, then make edition, after which press the CCRS key of the deck.

Operation:
- The level setting is the same as in "(A) Fade out mode".
- The operation during play is the same as in "(B) Erase mode". However, the CD player, upon the termination of all tunes on the A side, issues the A side end code, and enters the pause mode at the head tune on the B side.
- The operation at the tape end of the deck is the same as in "(B) Erase mode". However, when the tape length is suited, item 5) of "(B) Erase mode" is engaged.
When the status other than at the same item 5) is entered due to faulty input, etc., that is when the tape end or tape end back code is received, the CD player cancels the edit mode, after which it performs the operation occurring at "(B) Erase mode".

CIRCUIT DESCRIPTION

5. Microprocessor: μPD75112CW-098 (X28: IC20)

5-1. Terminal connection diagram



※ 1) KEY MATRIX

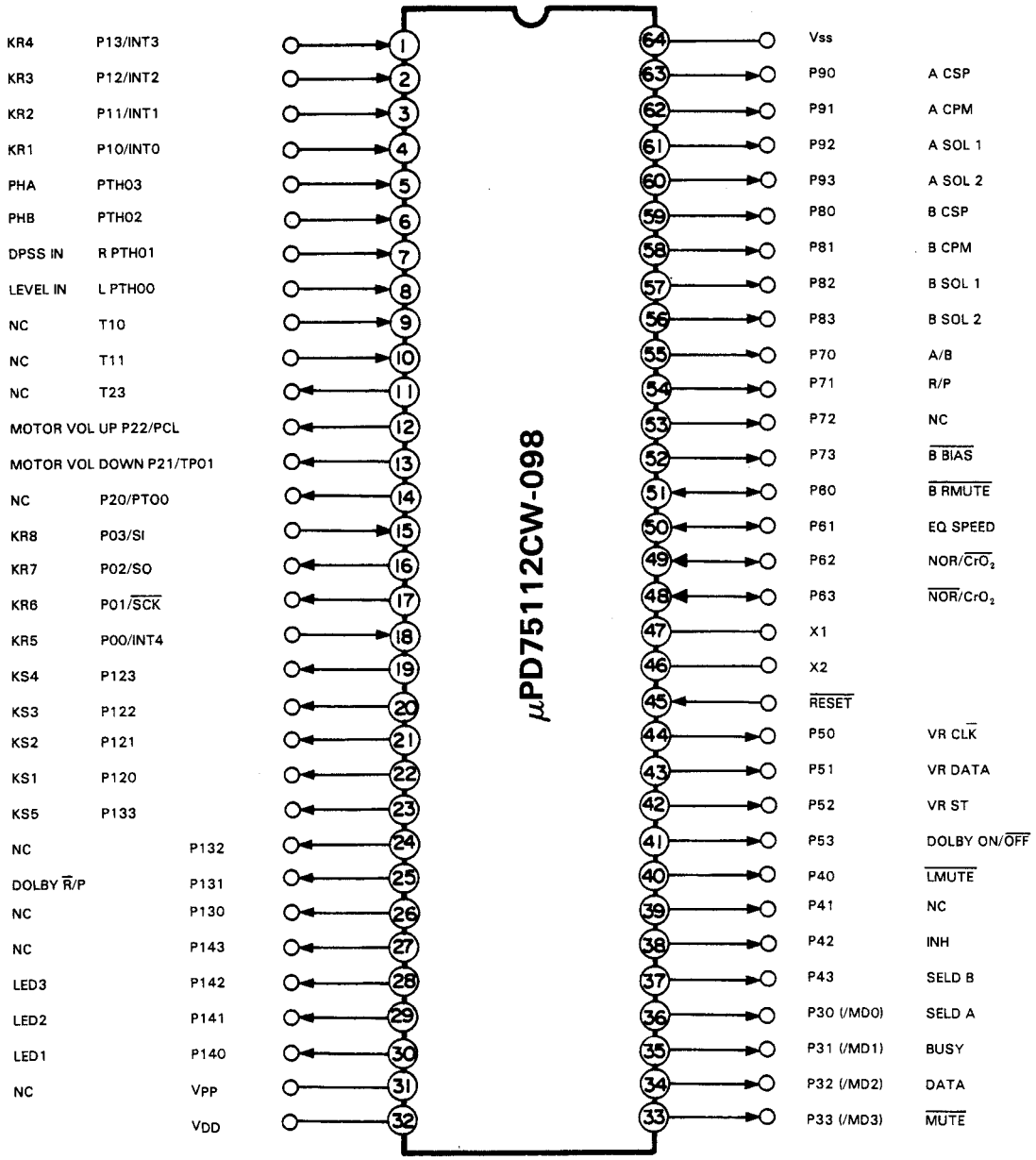
PIN No. of IC20		㉒	㉑	⑳	⑲	㉓
		KS1	KS2	KS3	KS4	KS5
④	KR1	ONEWAY	T. REC	B CrO_2	B ◀◀	NDUB
③	KR2	A ▶	A ▶▶	B ●	B ◀	HDUB
②	KR3	A ◀	DOLBY	B ❚❚	B ▶▶	CCRS
①	KR4	A ■	A ◀◀	B ■	B ▶	CRLS
⑱	KR5	A PLAY	—	B PLAY	—	TEST 1
⑰	KR6	A PACK	—	B PACK	—	TEST 2
⑯	KR7	A CrO_2	—	INHFB	—	VOLMAX
⑮	KR8	—	—	INHRB	—	—

※ 2) LED MATRIX

PIN No. of IC20		㉒	㉑	⑳	⑲	㉓
		KS1	KS2	KS3	KS4	KS5
㉚	LED1	DOLBY	NDUB	HDUB	CRLS	CCRS
㉙	LED2	T. REC	PAUSE	REC	B FWD	ONEWAY
㉘	LED3	A RVS	A FWD	B RVS	—	—

CIRCUIT DESCRIPTION

5-2. Pin connection



CIRCUIT DESCRIPTION

Pin Functions:

Pin No.	Pin name	I/O	Symbol	Function
1	P13/INT3	I	KR4	Mechanism switch input H : SW OFF L : SW ON
2	P12/INT2	I	KR3	Mechanism switch input H : SW OFF L : SW ON
3	P11/INT1	I	KR2	Mechanism switch input H : SW OFF L : SW ON
4	P10/INT0	I	KR1	Mechanism switch input H : SW OFF L : SW ON
5	PTH03	I	PHA	Mechanism A rotation detection sensor input
6	PTH02	I	PHB	Mechanism B rotation detection sensor input
7	PTH01	I	DPSS IN	Section-between-tunes signal input H : With tune L : Without tune
8	PTH00	I	LEVEL IN	CCRS, meter signal input
9	TI0	I	NC	No use (GND)
10	TI1	I	NC	No use (GND)
11	P23	O	NC	No use (GND)
12	P22/PCL	O	M. VOL. UP	Motor volume UP signal
13	P21/PTO1	O	M. VOL. DOWN	Motor volume Down signal
14	P20/PTO0	O	NC	No use (OPEN)
15	P03/SI	I	KR8	Master-slave communication serial data input (key return input L: SW ON)
16	P02/SO	O	KR7	Master-slave communication serial data output (key return input L: SW ON)
17	P01/$\overline{SCK}$	O	KR6	Master-slave communication serial data shift clock output (key return input L: SW ON)
18	P00/INT4	I	KR5	Slave microprocessor reception acknowledge signal input H : Reception OK L : Reception NG
19	P123	O	KS4	Slave microprocessor reset output (key scan output) H : Reset L : Normal
20	P122	O	KS3	Mechanism switch scan output H : OFF L : Scan
21	P121	O	KS2	Mechanism switch scan output H : OFF L : Scan
22	P120	O	KS1	Mechanism switch scan output H : OFF L : Scan
23	P133	O	KS5	Mechanism switch scan output H : OFF L : Scan
24	P132	O	NC	No use (OPEN)
25	P131	O	DOLBY $\overline{R}$/P	Dolby $\overline{R}$/P selection H : PLAY L : REC
26	P130	O	NC	No use (OPEN)

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Function	
27	P143	O	NC	No use (OPEN)	
28	P142	O	LED 3	LED control	H : ON L : OFF
29	P141	O	LED 2	LED control	H : ON L : OFF
30	P140	O	LED 1	LED control	H : ON L : OFF
31	V_{PP}	—	NC	No use	
32	V_{DD}	—	V_{DD}	Connected to +5 V.	H : OFF L : ON
33	P33	O	$\overline{MUTE}$	Deck mute control	
34	P32	I/O	DATA	System control Signal I/O (DATA)	
35	P31	I/O	BUSY	System control signal I/O (BUSY)	
36	P30	O	SELDA	Selector IC control (A)	
37	P43	O	SELDB	Selector IC control (B)	
38	P42	O	INH	Selector IC control (INH)	
39	P41	O	NC	No use (OPEN)	
40	P40	O	$\overline{LMUTE}$	Line mute control	H : OFF L : ON
41	P53	O	DOLBY ON/OFF	DOLBY ON/OFF control	H : ON L : OFF
42	P52	O	VR ST	Electronic volume strobe signal output	
43	P51	O	VR DATA	Electronic volume serial data output	
44	P50	O	VRCLK	Electronic volume serial clock	
45	$\overline{RESET}$	I	$\overline{RESET}$	Reset input	H : Normal L : Reset
46	X2	O	—	Ceramic OSC connection pin	f=4.19 MHz
47	X1	I	—	Ceramic OSC connection pin	f=4.19 MHz
48	P63	O	$\overline{NOR}/CrO_2$	NOR/CrO_2 selection	L : NORMAL H : CrO_2
49	P62	O	$NOR/\overline{CrO_2}$	NOR/CrO_2 selection	H : NORMAL L : CrO_2
50	P61	O	EQ SPEED	Deck B EQ control	H : High speed L : Normal
51	P60	O	$\overline{BR\ MUTE}$	Deck B recording mute control	H : OFF L : ON
52	P73	O	$\overline{B\ BIAS}$	Deck B bias ON/OFF	H : OFF L : ON
53	P72	O	NC	No use (OPEN)	

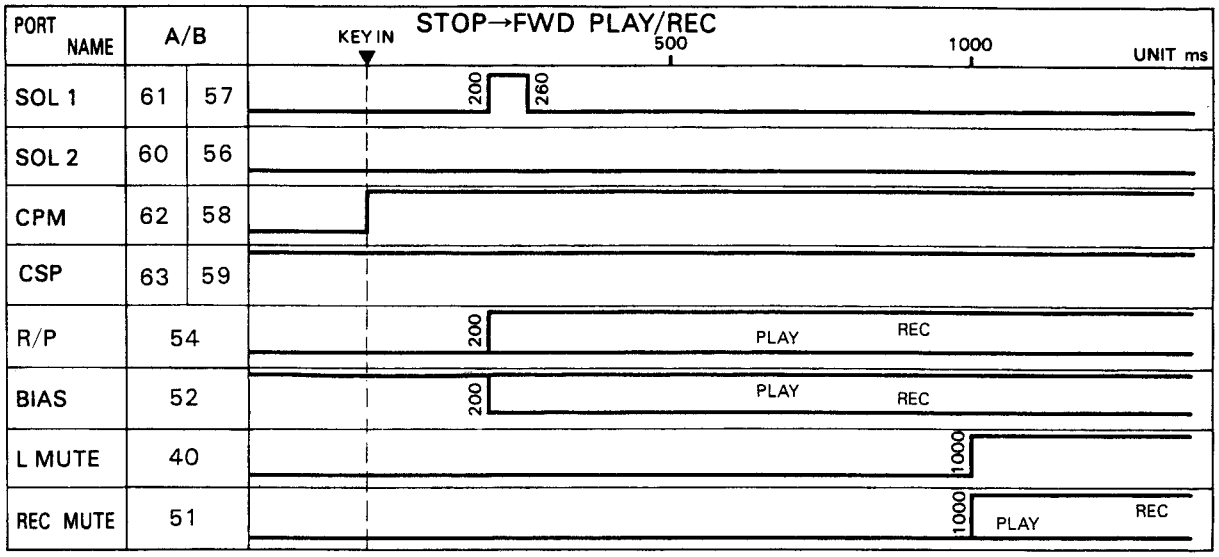
DECK

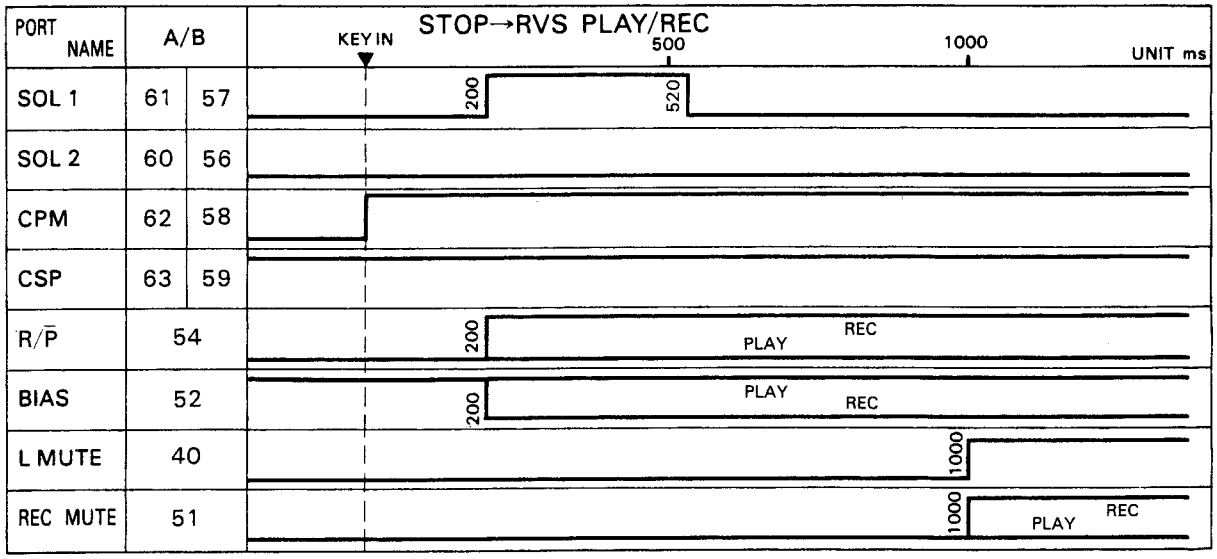
CIRCUIT DESCRIPTION

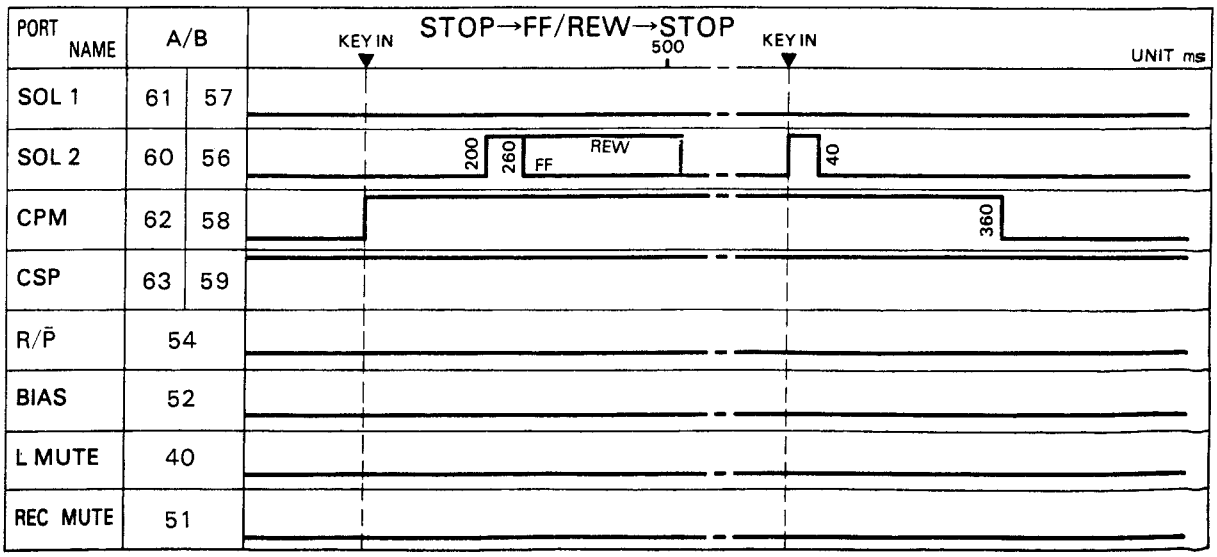
Pin No.	Pin name	I/O	Symbol	Function	
54	P71	O	R/$\overline{P}$	Deck B R/P selection	H : REC L : PLAY
55	P70	O	$\overline{A}$/B	Playback EQ A/B selection	H : B L : A
56	P83	O	SOL2B	Deck B solenoid 2 control	H : Normal speed L : High speed
57	P82	O	SOL1B	Deck B solenoid 1 control	H : Play or recording L : Others
58	P81	O	CPMB	Deck B capstan motor control	H : ON L : OFF
59	P80	O	CSPB	Deck B capstan motor speed control	H : Normal L : High speed
60	P93	O	SOL2A	Deck A solenoid 2 control	H : ON L : OFF
61	P92	O	SOL1A	Deck A solenoid 1 control	H : ON L : OFF
62	P91	O	CPMA	Deck A capstan motor control	H : ON L : OFF
63	P90	O	CSPA	Deck A capstan motor speed control	H : Normal speed L : High speed
64	V_{SS}	—	V_{SS}	Connected to GND.	

CIRCUIT DESCRIPTION

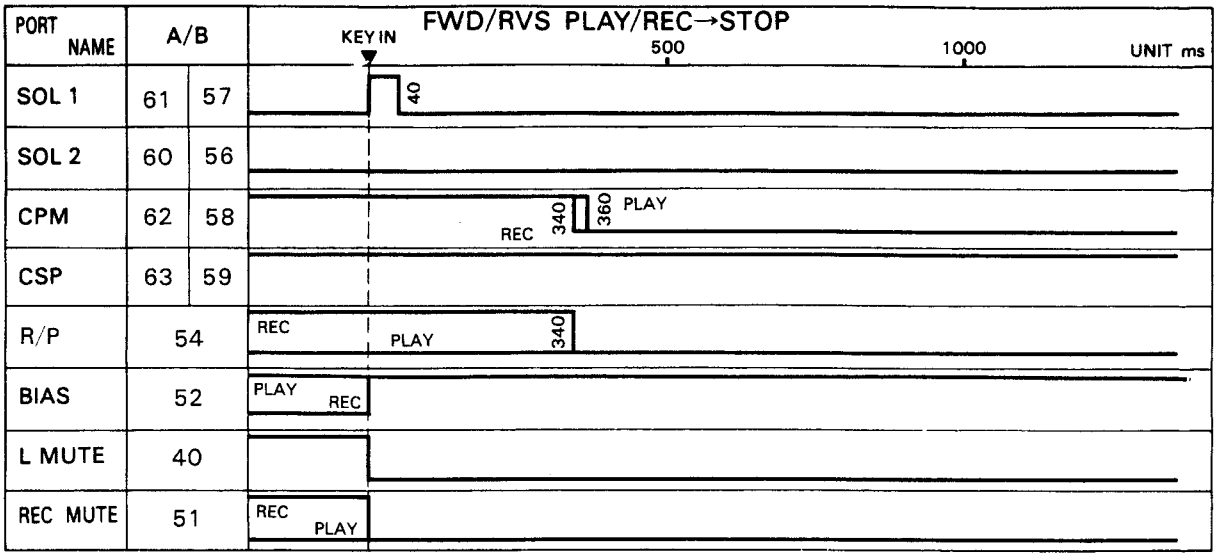
6. TIMING CHART

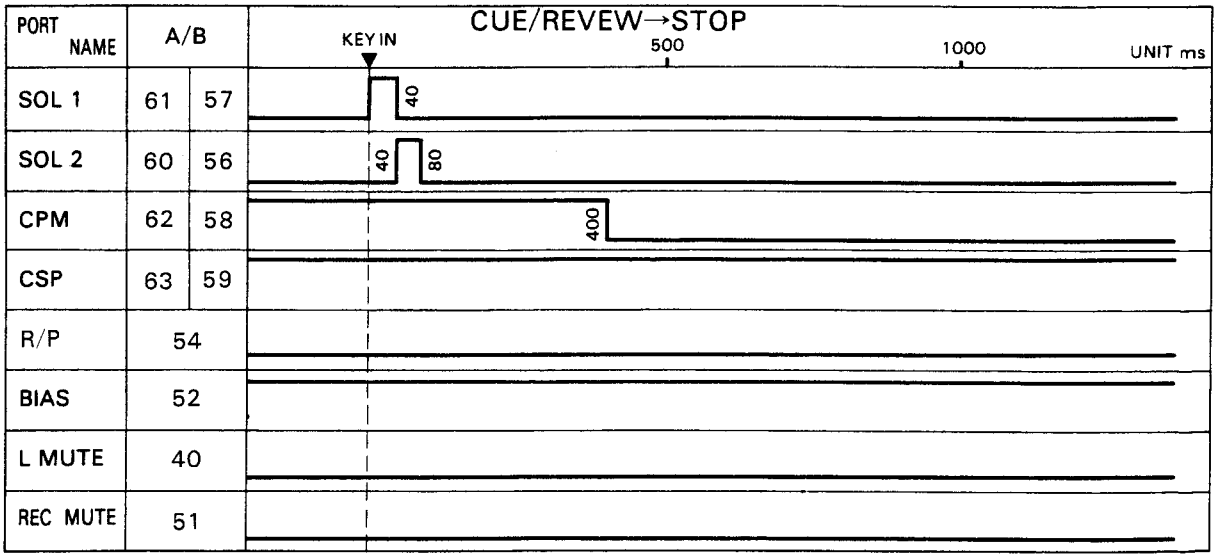


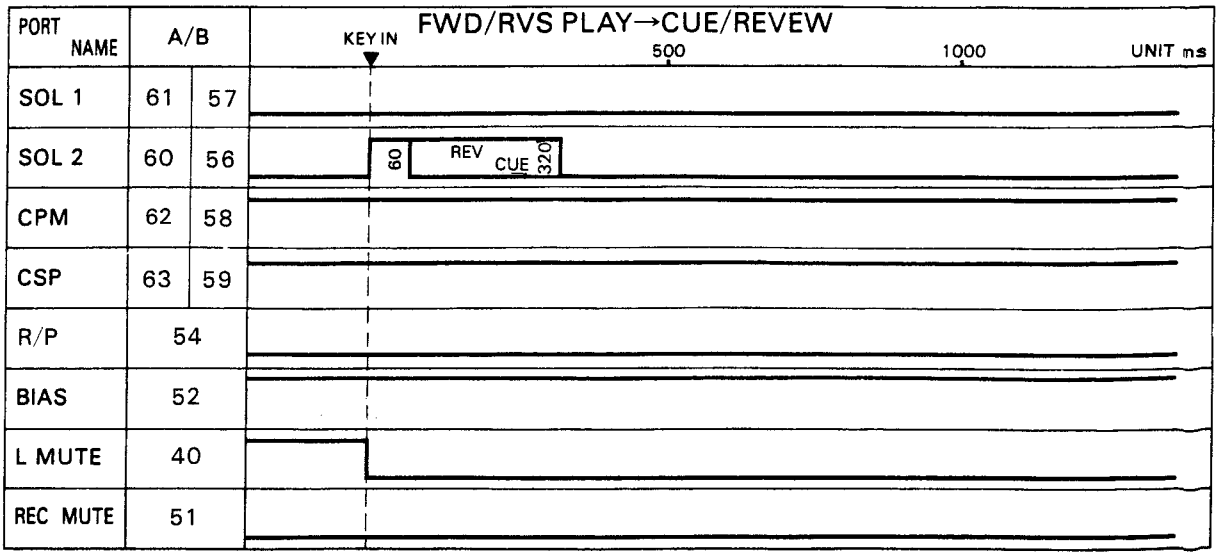




CIRCUIT DESCRIPTION

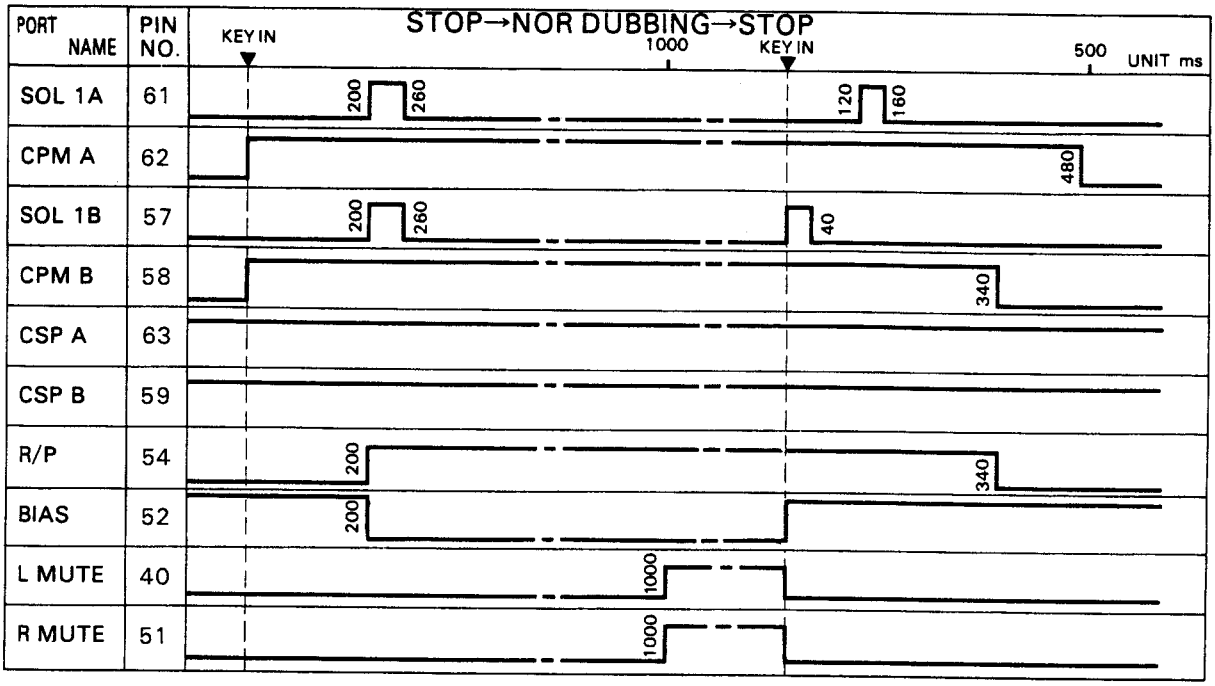




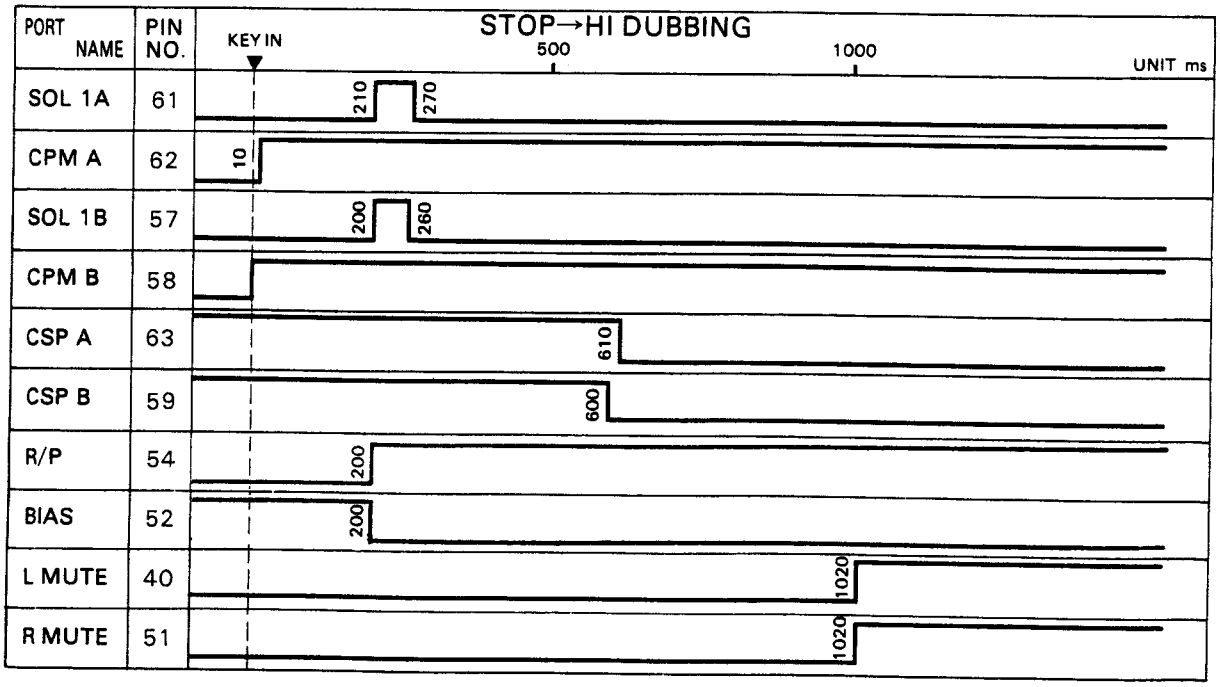


CIRCUIT DESCRIPTION

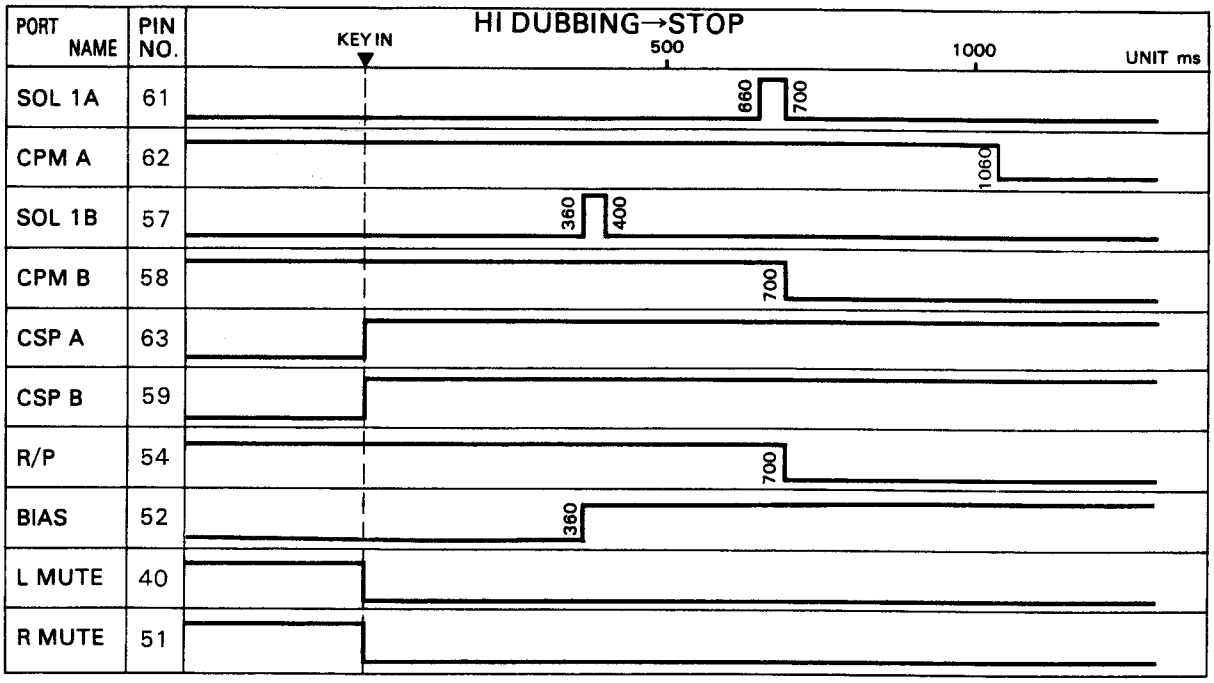
STOP→NOR DUBBING→STOP



STOP→HI DUBBING



CIRCUIT DESCRIPTION



RXD-25/25L

CIRCUIT DESCRIPTION

RECEIVER (AMPLIFIER TUNER) SECTION

1. Operation Specifications

1-1 Function Outline

- Tuner system

  A timer, two-channel program timer, and 90-minute sleep timer are incorporated. This tuner also controls FM, and AM synthesizers.

- Amplifier system

  The amplifier selects a five-channel audio system (PHONO, TUNER, CD, TAPE A and B) as input.

1-2 Tuner Control PLL IC (LM7001)

① Autotuning (during AUTO ON)
When a frequency is scanned in approximately 128 ms and the station is tuned, the receive mode is entered to maintain the station.

② Manual tuning (during AUTO OFF)
A frequency is sent in step. When key is pressed for more than 500 ms after it is first entered, the frequency is scanned continuously in 128 ms until the key is released.

③ Preset memory read/write
Ten each FM and AM bands (20 bands total) can be memorize.

④ Preset scan (remote control unit only)
The current receive channel is incremented or decremented with the preset channel UP/DOWN key on the remote controller. The up or down operation starts from channel 01 if the UP key is pressed when the current receive channel is not a preset channel. It starts from channel 20 if the DOWN key is pressed. The above operation is performed continuously in the cycle shown in Figure 1 until the UP or DOWN key is released.

1-3 Clock Functions

1) The clock is displayed in 24-hour notation.
2) The colon does not blink.
3) The display section blinks to indicate that the clock is not running when a power failure is recovered or when the power is turned on initially.

1-4 Timer Functions

1) A two-event daily timer is provided.
2) There is a sleep timer that can be set in 10-minute steps between 10 and 90 minutes.

1-5 Amplifier Control

1) Input selector
   The input selector selects the PHONO, TUNER, TAPE A, TAPE B, or CD key. Each selector state is displayed by LED.

1-6 Remote Control Function

Each operation and unit can be remotely controlled by signals from the infrared remote controller.

1-7 Automatic Functions

Units provided with this audio system have the functions described below, except for PHONO.

1) The amplifier selector is automatically set by setting a unit to the PLAY mode (setting the tuner band or channel).
2) Each unit can be set to the operating mode by setting the amplifier selector.
3) The selector cannot be set when a tape deck is in the REC mode (including CCRS mode).
4) The above operations can also be controlled remotely.

1-8 Protection Function

This audio system has a protection function. The system enters the power-off state as soon as the protection function is activated. After that, the power-off state is entered again without connecting the speakers after the power-on state is muted for four seconds until the function is canceled.

CIRCUIT DESCRIPTION

2. Receiving Band and PLL IC (LM7001) Output

Band	Destination Type	Receiving frequency range (f)	Channel space	PLL reference frequency	Intermediate frequency	PLL input terminal	PLL output port		
							B01	B02	B03
FM	K	87.5 MHz~ 108.0 MHz	100 kHz	50 kHz	f+10.7 MHz	FMIN	H	H	L
	E		50 kHz						
AM	K	530 kHz~ 1610 kHz	10 kHz	10 kHz	f+450 MHz	AMIN	H	L	H
	E	531 kHz~ 1602 kHz	9 kHz	9 kHz	f+450 kHz	AMIN	H	L	H
LW	E	153 kHz~ 281 kHz	1 kHz	1 kHz	f+450 kHz	AMIN	L	H	H

3. Initial Stage

	State
POWER	OFF
AMP section	INPUT TUNER MUTE OFF
TUNER section	BAND FM Receiving frequency Lowermost limit of FM TUNING MODE AUTO Preset state Test frequency
TIMER section	Cloc. 0:00 Timer program (1) and (2) ON 0:00 OFF 0:00 01CH Execution mode Non-execution

Initial State Setting

The initial state is set in the following cases:

1) When the backup memory is erased
2) When the AC plug is inserted into the wall outlet while holding down the TUNER key.

Test Frequency in Initial State

The frequency preset for each channel in the initial state is as shown in the table.

Channel	K, Y, M, X type	E, T type
1	98.0 MHz	98.0 MHz
2	108.0 MHz	108.0 MHz
3	630 kHz	630 kHz
4	990 kHz	990 kHz
5	1440 kHz	1440 kHz
6	1610 kHz	1602 kHz
7	87.5 MHz	162 kHz
8	87.5 MHz	216 kHz
9	87.5 MHz	270 kHz
10	89.1 MHz	89.1 MHz
11	87.5 MHz	281 kHz
12	87.5 MHz	87.5 MHz
13	87.5 MHz	87.5 MHz
14	87.5 MHz	87.5 MHz
15	87.5 MHz	87.5 MHz
16	87.5 MHz	87.5 MHz
17	87.5 MHz	87.5 MHz
18	87.5 MHz	87.5 MHz
19	87.5 MHz	87.5 MHz
20	87.5 MHz	87.5 MHz

CIRCUIT DESCRIPTION

4. Test Mode
Amplifier/tuner test mode

(1) Indicators lighting

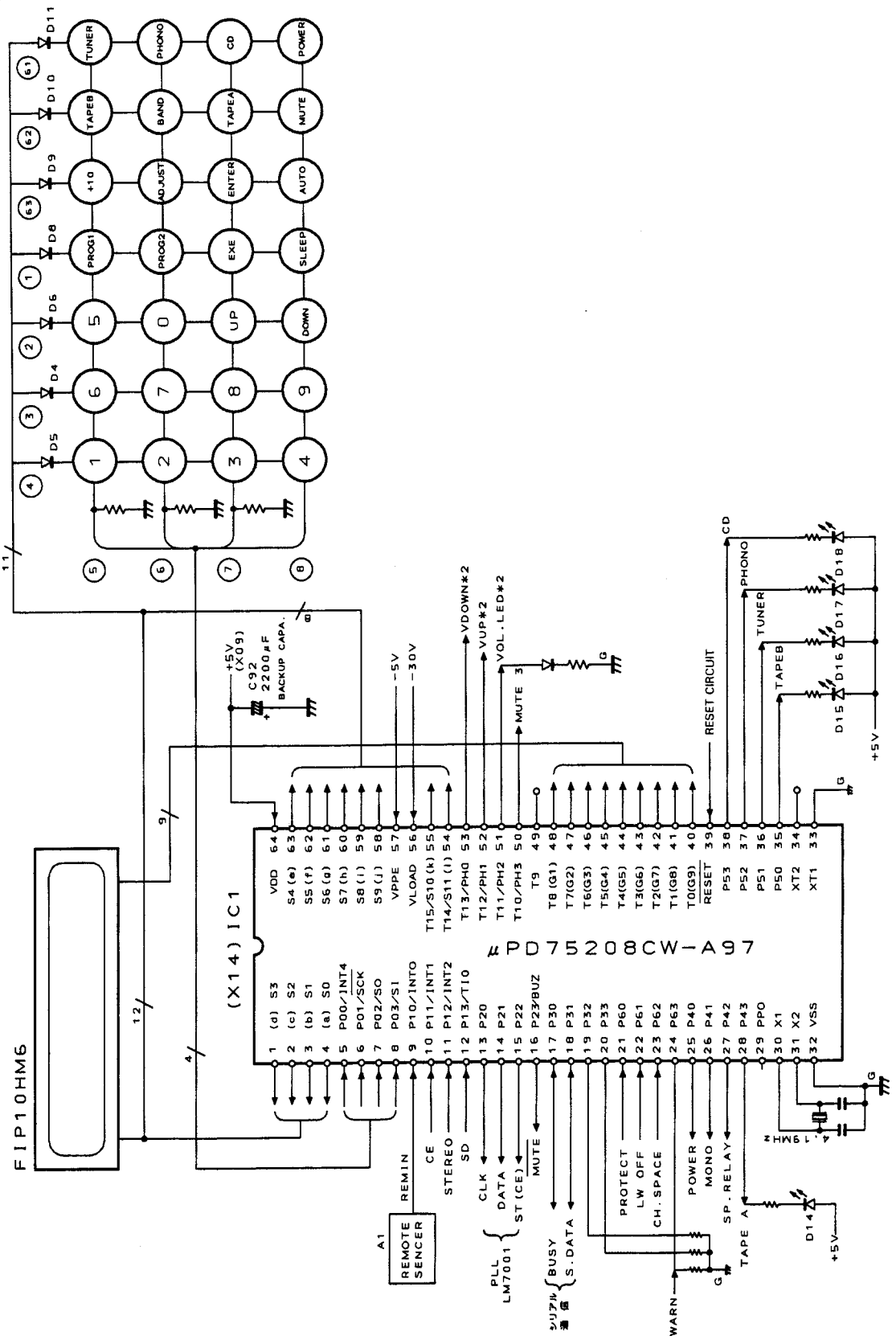
- Operation
  Insert the AC plug into the wall outlet while holding down the selector TAPE A key.
- Cancel
  Press the PHONO key (lighting cancel only) or pull the AC plug out of the wall outlet (reset) when all indicators are lit with the power on.
- Content
  The power is automatically turned on, and all fluorescent display indicators and LED indicators light. The fluorescent display indicators and LED indicators return to the normal state when the PHONO key is pressed with the indicators and power on. The volume control motor drive test can be performed in the test mode with the selector TAPE B key. The volume is increased when this key is pressed with the VOLUME knob at minimum. The volume is decreased after about 14 seconds, then the key is set to off after about 14 seconds.

5. Constant-Voltage Circuit Failure Detection Function
The system detects at pin 24 (WARN pin) of IC1 (X14) (μPD75208CW-A97) whether the 14-V constant-voltage power supply of the analog circuit section is accurately turned off one second after the power is turned off. If an abnormality is found, the power is automatically turned on, but not off. However, this power-on state differs from the normal power-on state, the speaker relay not being connected.

CIRCUIT DESCRIPTION

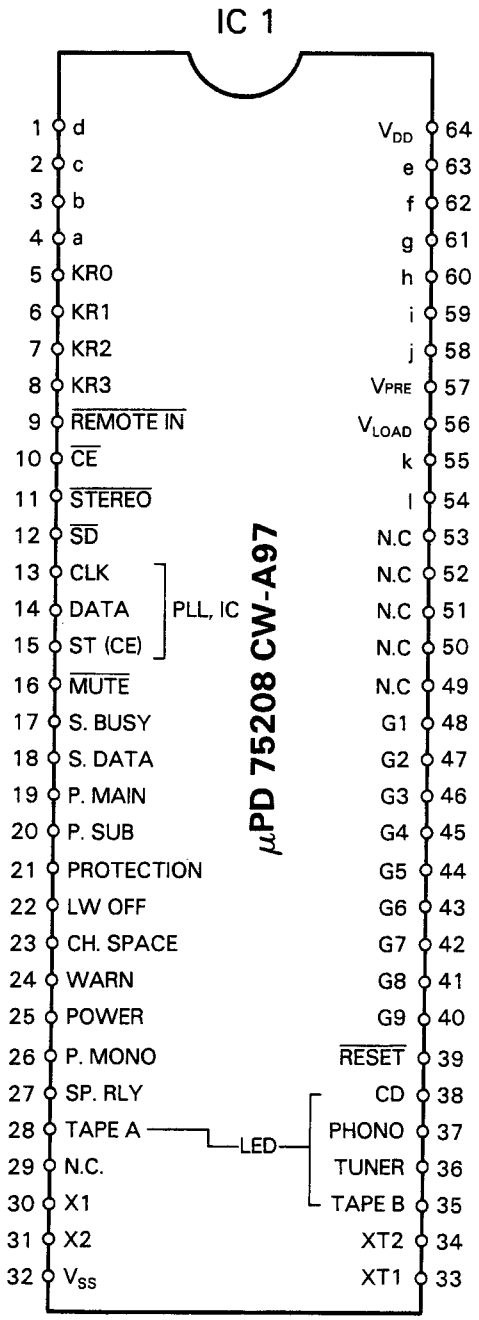
5. μPD75208CW-A97 (X14: IC1)
Receiver microprocessor

5-1 Terminal connection diagram



CIRCUIT DESCRIPTION

5-2 Pin connection



RECEIVER

CIRCUIT DESCRIPTION

5-3 Pin Function

Pin No.	Pin Name	I/O	Name	Description
1	S3	O	d	d-segment drive/key scan
2	S2	O	c	c-segment drive/key scan
3	S1	O	b	b-segment drive/key scan
4	S0	O	a	a-segment drive/key scan
5	P00	I	KR0	Key-matrix, key return input
6	P01	I	KR1	Key-matrix, key return input
7	P02	I	KR2	Key-matrix, key return input
8	P03	I	KR3	Key-matrix, key return input
9	P10	I	$\overline{\text{REMIN}}$	Remote control input Active Low
10	P11	I	$\overline{\text{CE}}$	Backup detection Active Low
11	P12	I	$\overline{\text{STO}}$	Stereo broadcast detection Active Low
12	P13	I	$\overline{\text{SD}}$	Station detection Active Low
13	P20	O	CLK	Control PLL IC (LM7001) clock
14	P21	O	DATA	Control PLL IC (LM7001) data
15	P22	O	ST	Control PLL IC (LM7001) strob
16	P23	O	$\overline{\text{MUTE}}$	Mute signal out Active Low
17	P30	I/O	BUSY	System control signal input/output (BUSY)
18	P31	I/O	SDATA	System control signal input/output (DATA)
19	P32	O	PMAIN	No. Used GND
20	P33	O	PSUB	No Used GND
21	P60	I	PROTECT	Protection signal input
22	P61	O	LW OFF	Institute Band "LOW" L: LW H: OFF
23	P62	O	CH-SPACE	Institute "Channel space" (FM) L: 100K H: 50K
24	P63	I	WARN	Defect detection of AVR
25	P40	O	POWER	Power relay control H: Power ON
26	P41	O	MONO	Monaural control H: Mono
27	P42	O	SPRLY	Control OUTPUT relay H: Relay ON
28	P43	O	LTAPEA	INPUT selector LED (TAPE, A)
29	PPO	O		No used OPEN
30	X1	I		System clock oscillation (crystal 4.194304 MHz)
31	X2	O		System clock oscillation (crystal 4.194304 MHz)
32	V_{ss}			Power supply (GND)
33	XT1	I		No used GND
34	XT2	O		No used OPEN
35	P50	O	L TAPEB	INPUT SELECTOR LED (TAPE B) Active Low

CIRCUIT DESCRIPTION

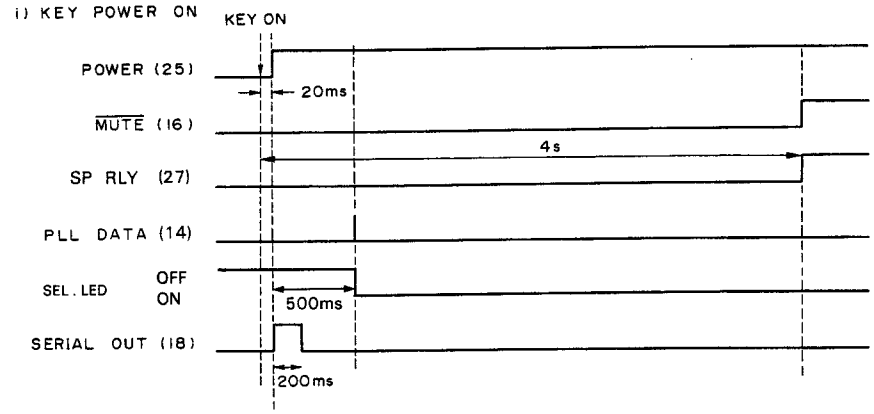
Pin No.	Pin Name	I/O	Name	Description	
36	P51	O	L TUNER	INPUT selector LED (TUNER)	Active Low
37	P52	O	L PHONO	INPUT selector LED (PHONO)	Active Low
38	P53	O	L CD	INPUT selector LED (CD)	Active Low
39	$\overline{\text{RESET}}$			Reset	L: RESET
40	T0	O	9G	Grit control (9G)	
41	T1	O	8G	Grit control (8G)	
42	T2	O	7G	Grit control (7G)	
43	T3	O	6G	Grit control (6G)	
44	T4	O	5G	Grit control (5G)	
45	T5	O	4G	Grit control (4G)	
46	T6	O	3G	Grit control (3G)	
47	T7	O	2G	Grit control (2G)	
48	T8	O	1G	Grit control (1G)	
49	T9	O		No used	
50	PH3	O		No used	
51	PH2	O		No used	OPEN
52	PH1	O		No used	OPEN
53	PH0	O		No used	OPEN
54	S11	O	l	l-segment drive	
55	S10	O	k	k-segment drive/key scan	
56	V_{LOAD}			Pull-down for FL (−30 V)	
57	V_{PRE}			Predriver for FL	
58	S9	O	j	j-segment drive/key scan	
59	S8	O	i	i-segment drive/key scan	
60	S7	O	h	h-segment drive/key scan	
61	S6	O	g	g-segment drive/key scan	
62	S5	O	f	f-segment drive/key scan	
63	S4	O	e	e-segment drive/key scan	
64	V_{DD}			Power supply (+5 V)	

CIRCUIT DESCRIPTION

6. TIMING CHART

(1) POWER ON

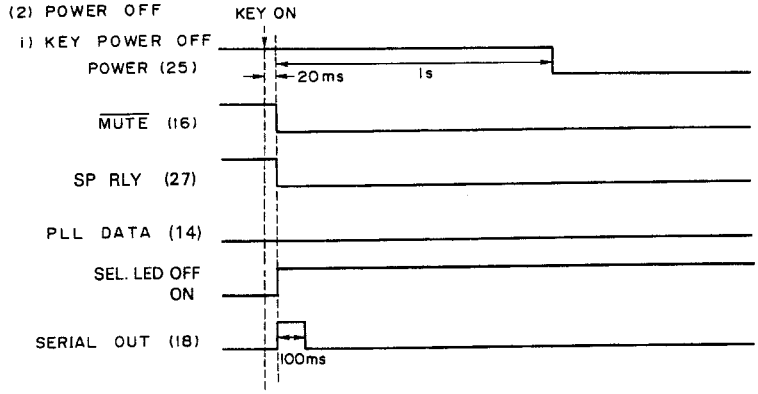
i) KEY POWER ON



ii) REMOCON POWER ON

(2) POWER OFF

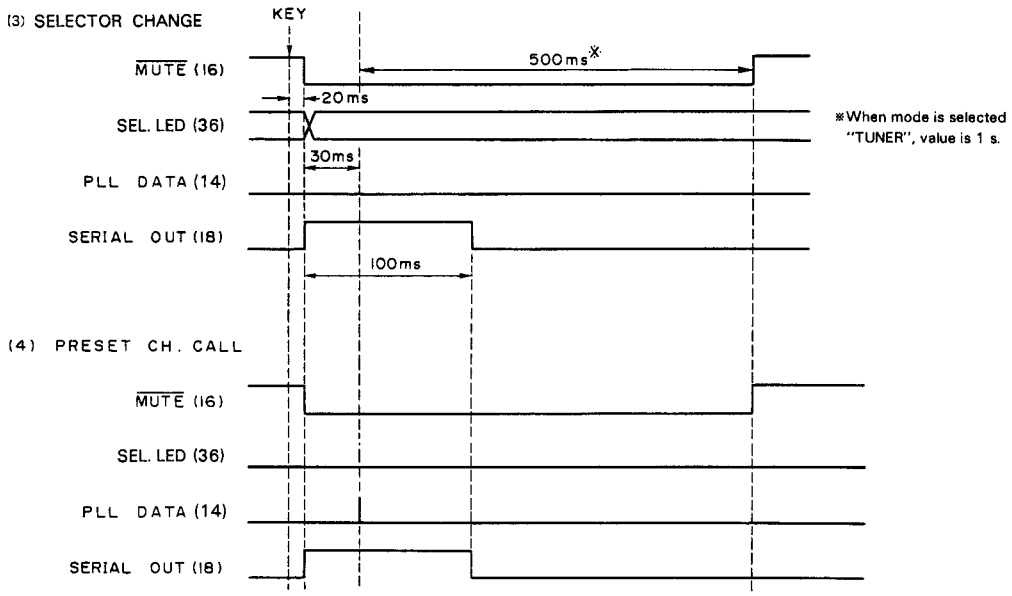
i) KEY POWER OFF



ii) REMOCON POWER OFF

CIRCUIT DESCRIPTION

(3) SELECTOR CHANGE

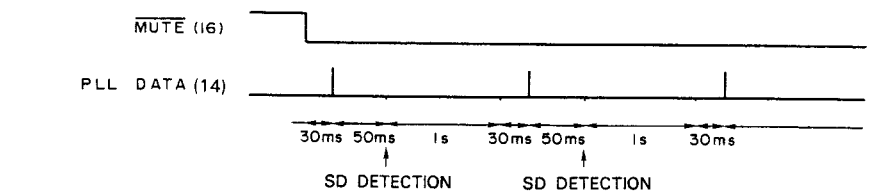


※When mode is selected "TUNER", value is 1 s.

(4) PRESET CH. CALL

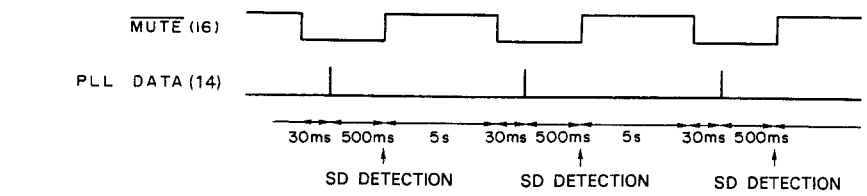
(5) PRESET CH. SCAN

i) No station

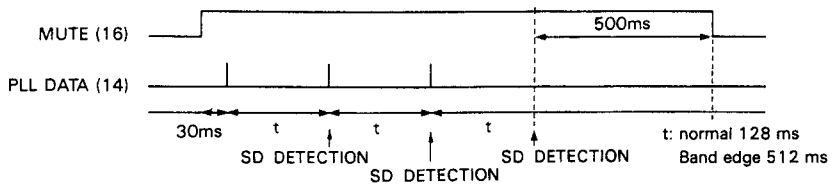


*Don't detect SD signal in non-TUNER mode.

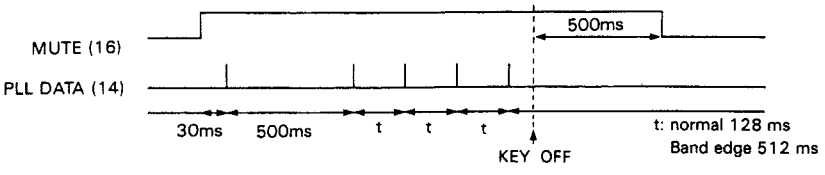
ii) Station



(6) AUTO TUNING



(7) MANUAL TUNING

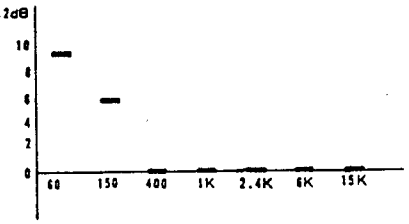
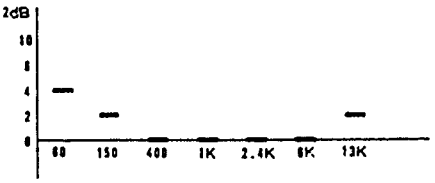


RECEIVER

CIRCUIT DESCRIPTION

GRAPHIC EQUALIZER SECTION

1. Graphic Equalizer Key Operation and Functions

Name	Description
EQ ON/OFF (Attached to amplifier.)	• Sets pin 23 of IC2 (X14) ON or OFF for LED indicator display. LOW ...Goes on • When the graphic equalizer is ON, the current graphic equalizer setting data is sent to the electronic volume control. When it is OFF, the data setting value becomes flat.
BASS BOOST (Attached to amplifier)	• Sets pin 17 of IC2 (X14) ON or OFF for LED indicator display. LOW ... Goes on. • When the BASS BOOST key is ON, bass boost data is added to the current graphic equalizer setting data. The resultant data is sent to the electronic volume control. When it is OFF, the current graphic equalizer setting data is sent to the electronic volume control. Bass boost curve  The bass boost curve has an effect only a music signal. The display does not change. (Graphic equalizer display)
SURROUND (Attached to amplifier) (RXD-25M only)	• Sets pin 16 of IC2 (X14) to ON or OFF for LED indicator display. • Surround circuit works or not by the signal of IC2 (*pin 16).
LOUDNESS (Attached to amplifier) (RXD-25 only)	• Set pin 16 of IC2 (X14) ON or OFF for LED indicator display. • When the LOUDNESS key is ON, loudness data is added to the current graphic equalizer setting data. The resultant data is sent to the electronic volume control. When it is OFF, the current graphic equalizer setting data is sent to the electronic volume control. Loudness curve  The loudness curve above has an effect only a music signal. The display does not change. (Graphic equalizer display) **Note:** When the BASS BOOST key is ON with the LOUDNESS key ON, it is forcibly set OFF. The LOUDNESS and BASS BOOST keys cannot be set ON at the same time. When the LOUDNESS key is set ON with the BASS BOOST key set ON, it is forcibly set OFF.
REFERENCE/ MANUAL	· Selects the REFERENCE or MANUAL memory. The display is only selected while the numeric keys (1 to 5) are pressed, the graphic equalizer curve remaining unchanged.
MEMORY	· The graphic equalizer settings at frequency points are set to UP/DOWN (±12 dB (MAX)). · The write enable mode is maintained for 5 seconds. At that time, the memory enable display appears. (The memory channel LED indicator blinks. If no data is written, the former display is returned after 5 seconds.)
FLAT	· The current graphic equalizer setting value is made flat.
1-5 (Numeric keys)	· Calls the REFERENCE or MANUAL memory. · Writes data to the MANUAL memory during memory enable. · The initial setting is called when the numeric keys are pressed continuously for five seconds during MANUAL call. · The display is selected when the equalizer is on during call, and data is transferred to the electronic volume control. When the equalizer is off, flat data is transferred.
Frequency UP/DOWN Level UP/DOWN	· Changes the frequency or the frequency level to be selected up or down (a maximum of ±12 dB). · When the UP/DOWN key is pressed continuously, the frequency level changes up or down every 500 msec and stops at the maximum or minimum level.

Note: The BASS BOOST and LOUDNESS keys are forcibly set to off when deck B is in the REC mode. They return to their former state when recording is complete.

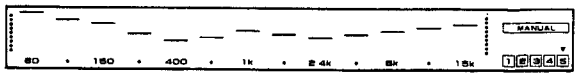
CIRCUIT DESCRIPTION

2. Display

Graphic equalizer display

The display usually shown the spectrum analyzer display. The graphic equalizer display appears for about 5 seconds only when one of the following operattons takes place.

1. When the power is turned on. *
2. When an equalizer pattern key is pressed.
3. When an equalizer level control key is pressed.
4. When the FLAT key is pressed.
5. When the MEMORY key is pressed.

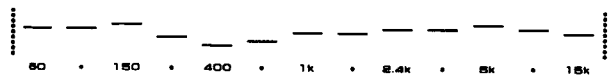
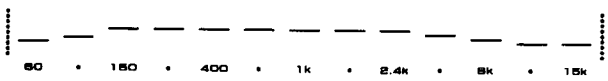
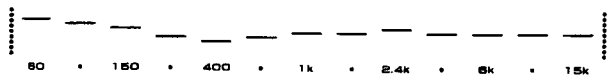
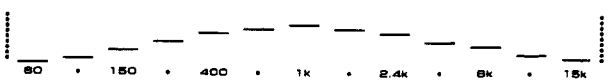
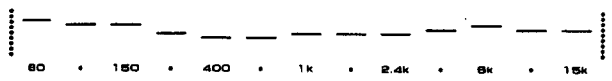
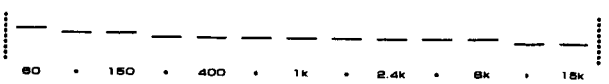
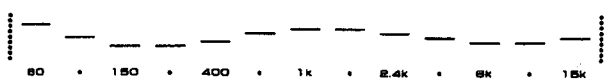
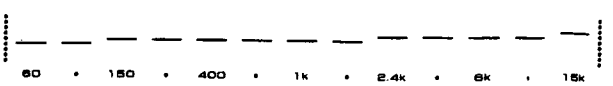
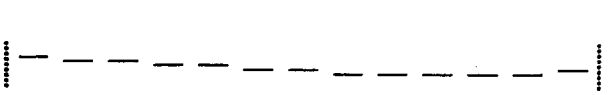
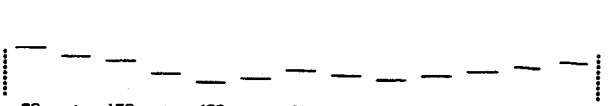


* The graphic equalizer curve in the last channel is displayed during the power-on sequence.

Specturm analyzer display

This shown the frequency distibution of the sorce being played.

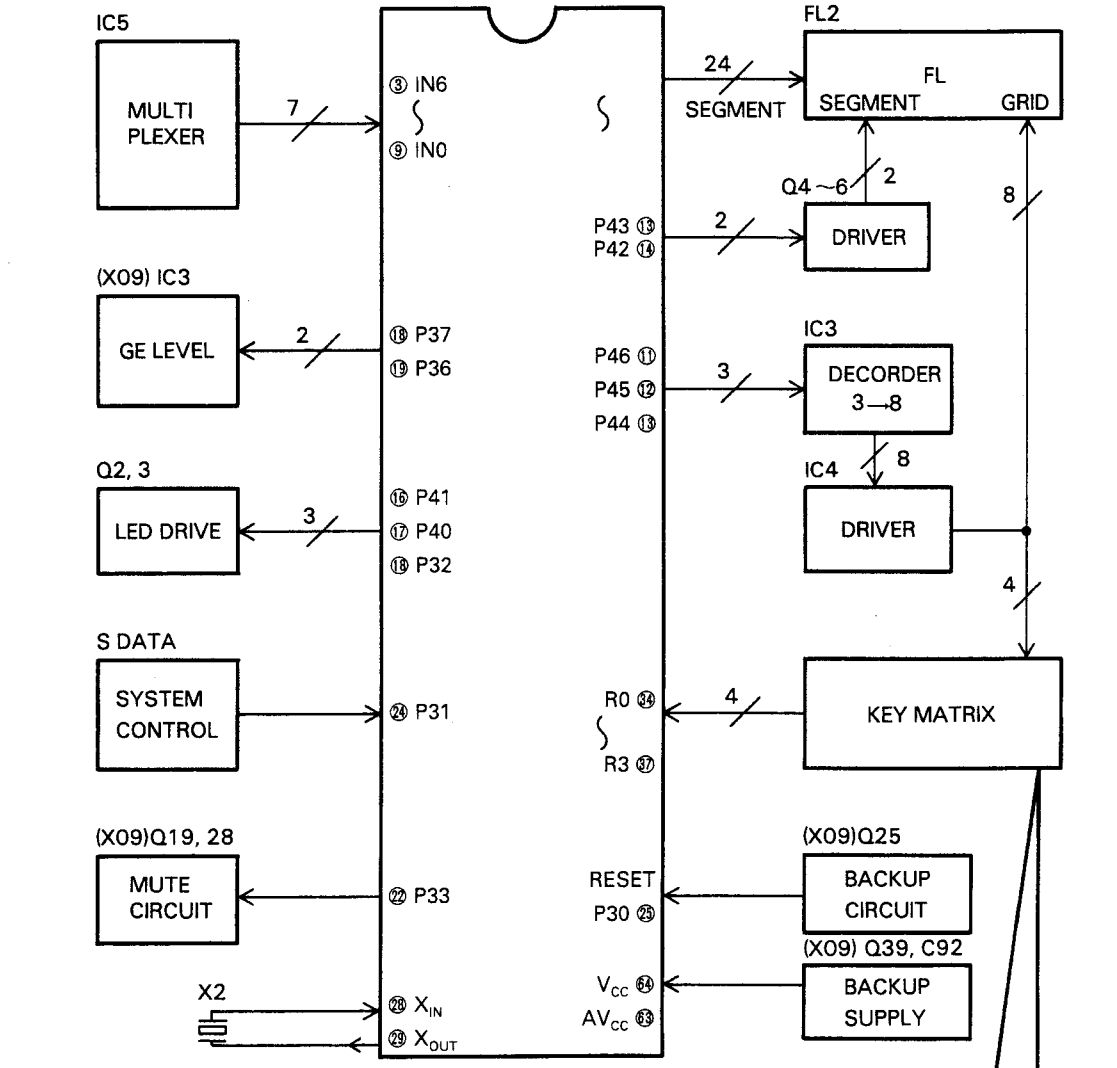
3. List of preset equalizer patterns

Preset equalizer pattern: REFERENCE 1 to 5	Preset equalizer pattern: MANUAL 1 to 5 Patterns can be created and preset by the user in this mode.
1 [PHONES] For recording sound by adjusting its sound suitable for playback with a headphone stereo.	**1** For reducing ultra-low frequency noise or scratch noise when playing an analog disk.
	
2 [CAR] For recording sound by adjusting its sound suitable for playback with a car stereo.	**2** For playing the jazz of the fifties, etc., with an ambience of those days.
	
3 [ROCK] For playing rock or fusion music with more powerful sound.	**3** For playing music for a long period of time, like background music.
	
4 [VOCAL] For playing various kind of music with enhanced vocal.	**4** For playing very detailed music.
	
5 [SOFT] For playing music with soft sound by cutting irritating middle and high frequencies.	**5** To create an exciting sound by enhancing ultra-low and high frequencies.
	

CIRCUIT DESCRIPTION

4. GE Microprocessor M50940-314SP (X14: IC2)

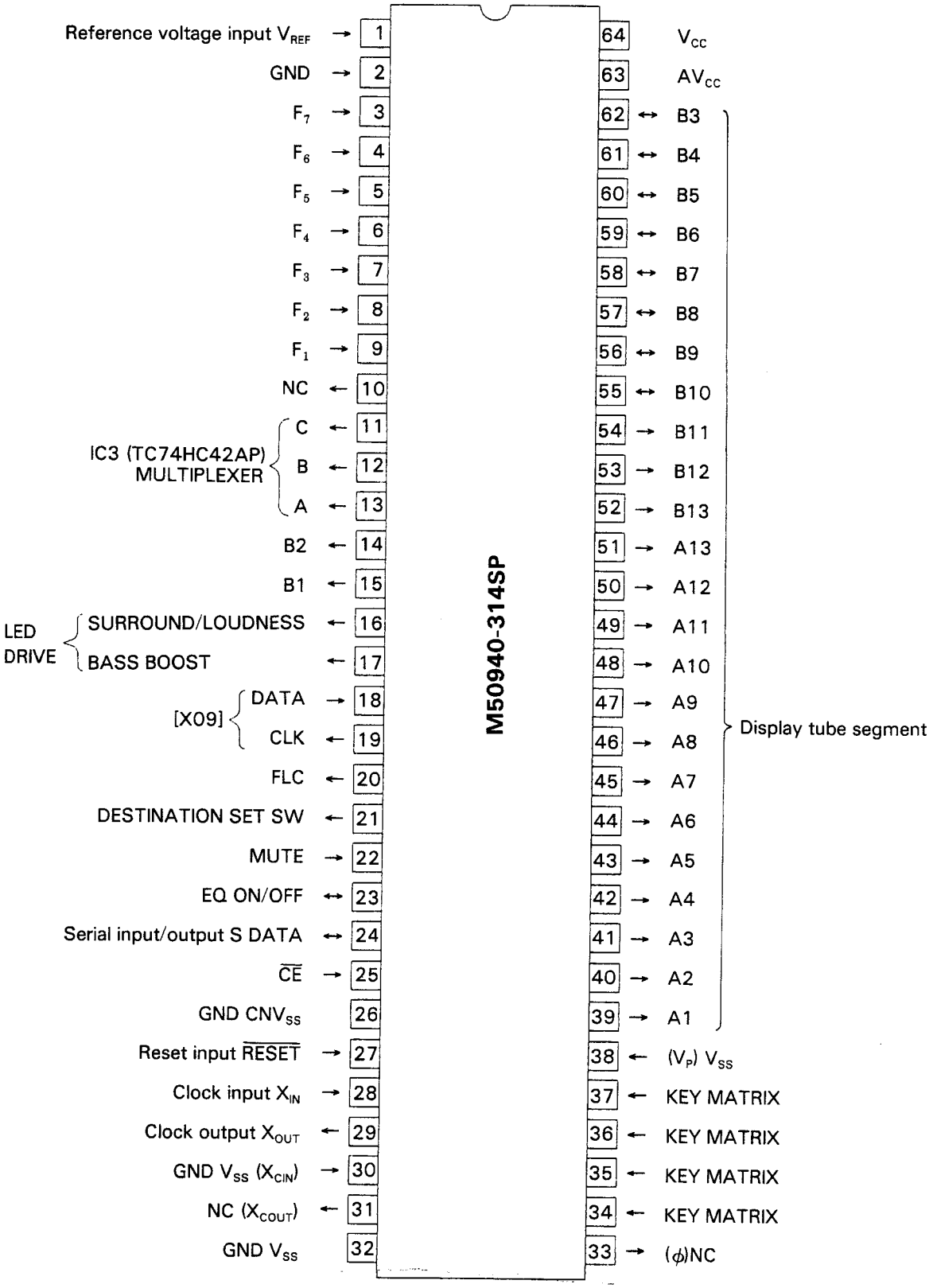
4-1. Microprocessor Block Diagram and Key Matrix



	7G	6G	5G	4G	PIN No. of IC2
KR0	REFE/MANU	MEMORY	FLAT	EQ ON/OFF	R0 ㉗
KR1	1	2	3	4	R1 ㉖
KR2	5	↓	↑	BASS BOOST	R2 ㉕
KR3	LOUD/SURR	←	→	—	R3 ㉔
	⑯	⑮	⑭	⑬	PIN No. of IC4

CIRCUIT DESCRIPTION

4-2. Pin connection



CIRCUIT DESCRIPTION

4-3. Description of terminals

Pin No.	Pin name	I/O	Name	Description
1	V_{REF}	—	V_{REF}	Reference voltage input for A/D converter.
2	IN7	I		Unused
3	IN6	I	F7	15 kHz analog signal input. (For inputting signals coming in directly from filter circuit.)
4	IN5	I	F6	6 kHz analog signal input.(For inputting signals coming in directly from filter circuit.)
5	IN4	I	F5	2.4 kHz analog signal input.(For inputting signals coming in directly from filter circuit.)
6	IN3	I	F4	1 kHz analog signal input.(For inputting signals coming in directly from filter circuit.)
7	IN2	I	F3	400 Hz analog signal input.(For inputting signals coming in directly from filter circuit.)
8	IN1	I	F2	150 Hz analog signal input.(For inputting signals coming in directly from filter circuit.)
9	IN0	I	F1	60 Hz analog signal input.(For inputting signals coming in directly from filter circuit.)
10	P47			Unsed
11	P46	O	C	TC74HC42: For outputting FL tube FIP 78W11Y and KEY SCAN signals.
12	P45	O	B	
13	P44	O	A	
14	P43	O	B1	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
15	P42	O	B2	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
16	P41	O	SURR/LOUD	LED of SURROUND (LOUDNESS) ON/OFF control H: ON L: OFF
17	P40	O	BASS BOOST	LED of BASS BOOST ON/OFF control H: ON L: OFF
18	P37	O	DATA	Output of LC7522 CONTROL DATA signals for electronic VR of graphic equalizer.
19	P36 (CLK)	O	CLOCK	Output of LC7522 CONTROL LOCK signals for electronic VR of graphic equalizer.
20	P35 (S_{OUT})	O	CFL	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L:ON
21	P34	I	DESTINATION	Output for DESTINATION TRANSFERRING signals. H: M.X. L: E.T.Y.
22	P33	O	$\overline{MUTE}$	MUTE control when power and SURROUND circuit ON/OFF. H: OFF L: ON
23	P32	O	EQ OFF/ON	Equalizer circuit ON/OFF control. H: OFF L: ON
24	P31	I/O	SDATA	Input/Output for SYSTEM SERIAL DATA signal.
25	P30	I	$\overline{CE}$	BACK UP detection. H: Others L: Backing up
26	CNV_{SS}	—		Unused (GND)
27	RESET	I	$\overline{RESET}$	RESET signal detection. H: Others L: Reset
28	X_{IN}	I	X_{IN}	System clock input (4.0 MHz).
29	X_{OUT}	O	X_{OUT}	System clock output.
30	X_{CIN}	I		Unused. (GND)
31	X_{COUT}	O	NC	Unused. (OPEN)
32	V_{SS}	—		GND.
33	ϕ	O	NC	Unused. (OPEN)
34	R3	I	R3	KEY RETURN signal input.
35	R2	I	R2	KEY RETURN signal input.
36	R1	I	R1	KEY RETURN signal input.
37	R0	I	R0	KEY RETURN signal input.
38	V_P	I		Input for pull down voltage.
39	P17	O	A1	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
40	P16	O	A2	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
41	P15	O	A3	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
42	P14	O	A4	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
43	P13	O	A5	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
44	P12	O	A6	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
45	P11	O	A7	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
46	P10	O	A8	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
47	P07	O	A9	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
48	P06	O	A10	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON

GRAPHIC EQUALIZER

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Name	Description
49	P05	O	A11	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
50	P04	O	A12	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
51	P03	O	A13	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
52	P02	O	B13	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
53	P01	O	B12	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
54	P00	O	B11	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
55	P27	O	B10	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
56	P26	O	B9	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
57	P25	O	B8	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
58	P24	O	B7	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
59	P23	O	B6	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
60	P22	O	B5	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
61	P21	O	B4	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
62	P20	O	B3	Output for DISPLAY TUBE SEGMENT DRIVE. H: OFF L: ON
63	AV_{CC}	—	AV_{CC}	Power supply for A/D converter (+5 V).
64	V_{CC}	—	V_{CC}	Power supply for microprocessor. (+5 V)

5. <TEST MODE>

(1) Setting; Insert AC plug to the power supply under pressing TAPE A Key.

(2) Confirm the following checks.

2-1. At first, all of segments turn on.

2-2. FLAT segments (0 dB) of all frequency turn on when pressing M → 1 Key.

2-3. MAX segments (+12 dB) of all frequency turn on when pressing M → 2 Key.

2-4. Min segments (−12 dB) of all frequency turn on when pressing M → 3 Key.

2-5. 3 points (+12 dB, 0 dB, −12 dB) of segments turn on in all frequency when UP [∧] of DOWN [∨] key is pressed.

(3) Canceling; Pull the AC plug to the power supply under pressing TUNER KEY on the input selector. (RESET)

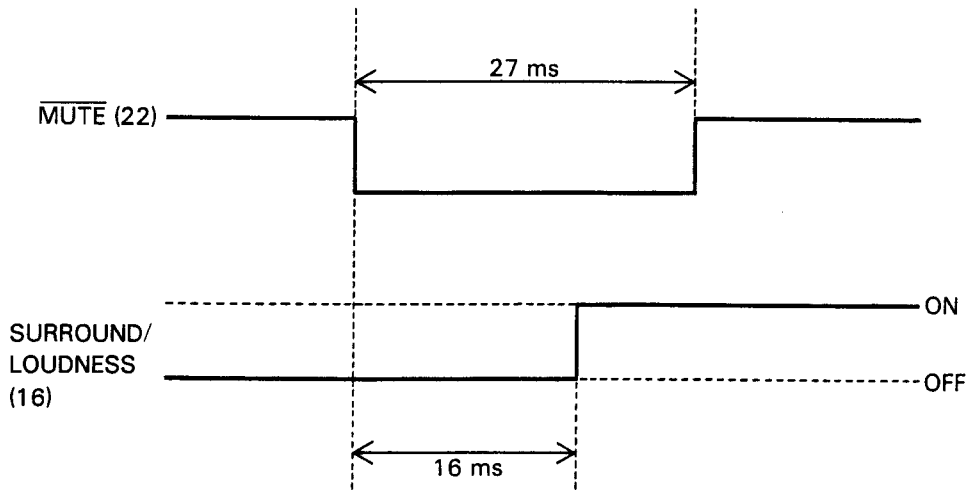
<INITIAL STATE>

(1) Insert AC plug to the power supply under pressing TUNER key on the input selector.

(2) Confirm the following checks

- EQ MEMORY MODE: MANUAL (INITIAL)
- EQ CURVE: ±0 dB ALL FLAT
- EQ ON/OFF: OFF
- SURROUND/LOUDNESS: OFF
- BASS BOOST: OFF
- DISPLAY MODE: Graphic equalizer
- MUTE: ON

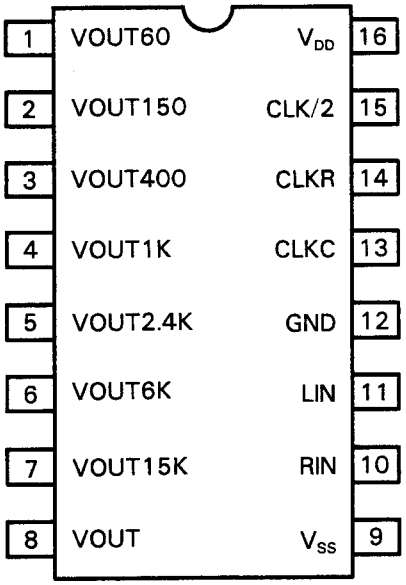
6. Timing Chart



CIRCUIT DESCRIPTION

7. GRAPHIC EQUALIZER DISPLAY FILTER FUNCTIONS

XR-1091DCP (X14: IC5)



Pin Description

Pin No.	Name	Description	Pin No.	Name	Description
1	OUT60	Peak hold output terminal of 60 Hz bandpass filter. Can be driven up to a 10 kΩ load.	9	Vss	Vss input (–4.5 to –6.5 V) A capacitor is connected to ground.
2	OUT150	Peak hold output terminal of 150 Hz bandpass filter.	10	RIN	Right-channel input. Input impedance is more than 1×10^{12} Ω
3	OUT400	Peak hold output terminal of 400 Hz bandpass filter.	11	LIN	Left-channel input. Input impedance is more than 1×10^{12} Ω
4	OUT1K	Peak hold output terminal of 1 kHz bandpass filter	12	GND	Digital and analog ground
5	OUT2.4K	Peak hold output terminal of 2.4 kHz bandpass filter.	13	CLKC	A clock capacitor is connected to ground.
6	OUT6.0K	Peak hold output terminal of 6.0 kHz bandpass filter.	14	CLKR	Connected to pin 13 of the clock resistor.
7	OUT15K	Peak hold output terminal of 15 kHz bandpass filter.	15	CLK/2	A 1/2 original oscillation clock is output.
8	OUTPEAK	OR peak hold output terminal.	16	VDD	VDD input (4.5 V — 6.5 V). A capacitor is connected to ground.

RXD-25/25L

MECHANISM OPERATION DESCRIPTION

C D

Mechanism Operation Description

Fig. 1 shows the relationship of mechanisms in the STOP mode. The OPEN/CLOSE operation of the mechanism and the UP/DOWN operation of the pickup chassis when loading the disc are description below.

Note 1 : The black arrow (OPEN) and the white arrow (CLOSE) in the operation description have the following meanings :

Black arrow (OPEN) : Tray opening direction (Tray OPEN)

White arrow (CLOSE) : Tray closing direction (Tray CLOSE)

Note 2 : Figures in the bracket ( ) in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.

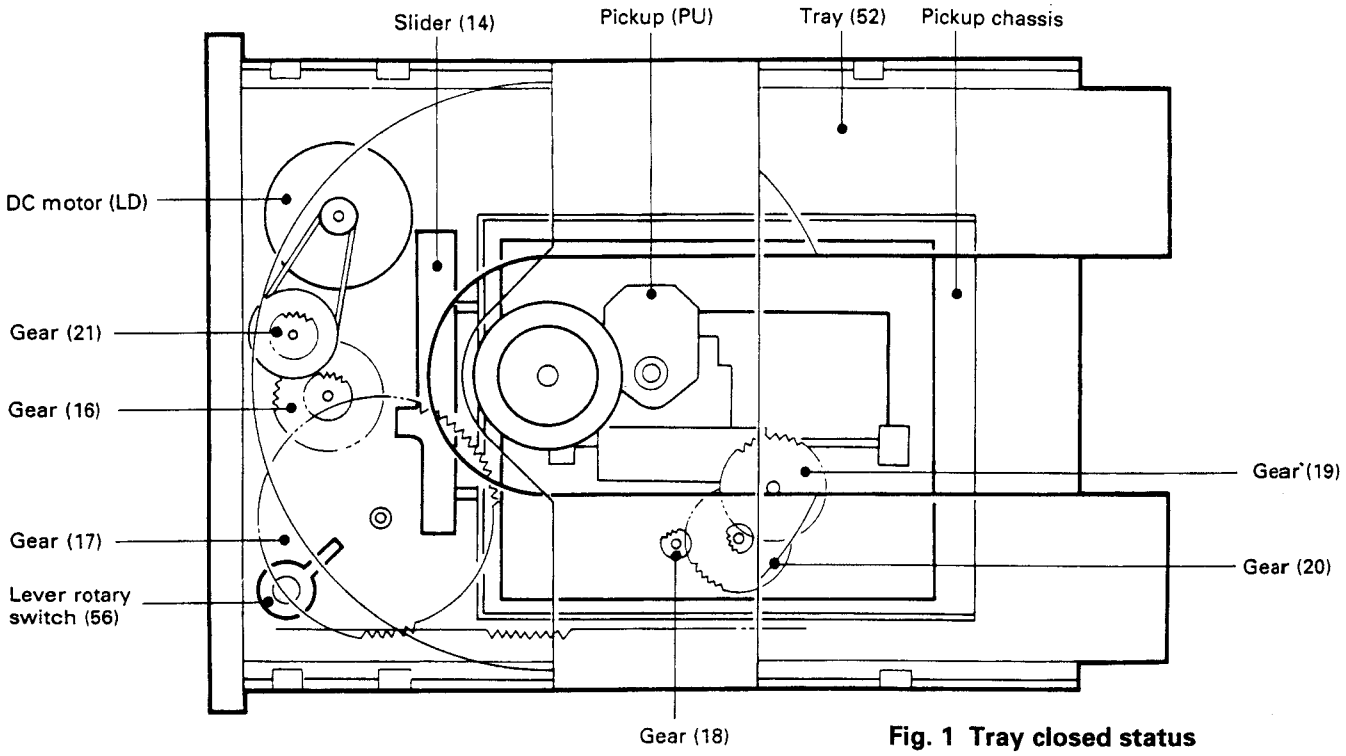


Fig. 1 Tray closed status

MECHANISM OPERATION DESCRIPTION

1. Tray OPEN/CLOSE Operation

By the rotation of the motor (❶), the gear (❷) is rotated and the tray starts OPEN/CLOSE (❸) operation. The OPEN/CLOSE operation stops when the protrusion of the gear comes in contact with the detection switch (❹).

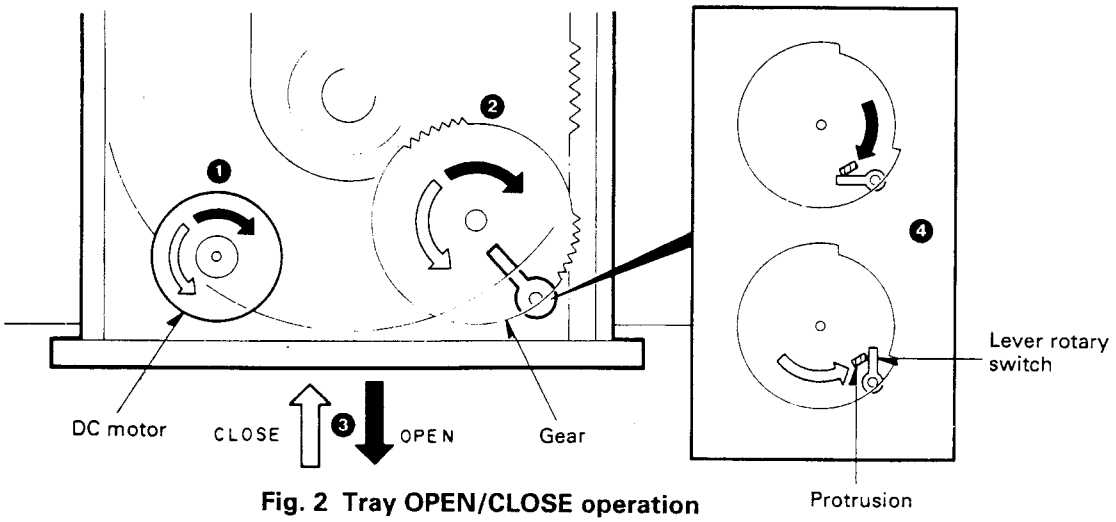


Fig. 2 Tray OPEN/CLOSE operation

2. Pickup Chassis UP/DOWN Movement

Accompanied with the OPEN/CLOSE operation, the lever is shifted (❷) by the rotation of the gear (❶). Along with the grooves in the lever, the pickup chassis moves up and down (❸).

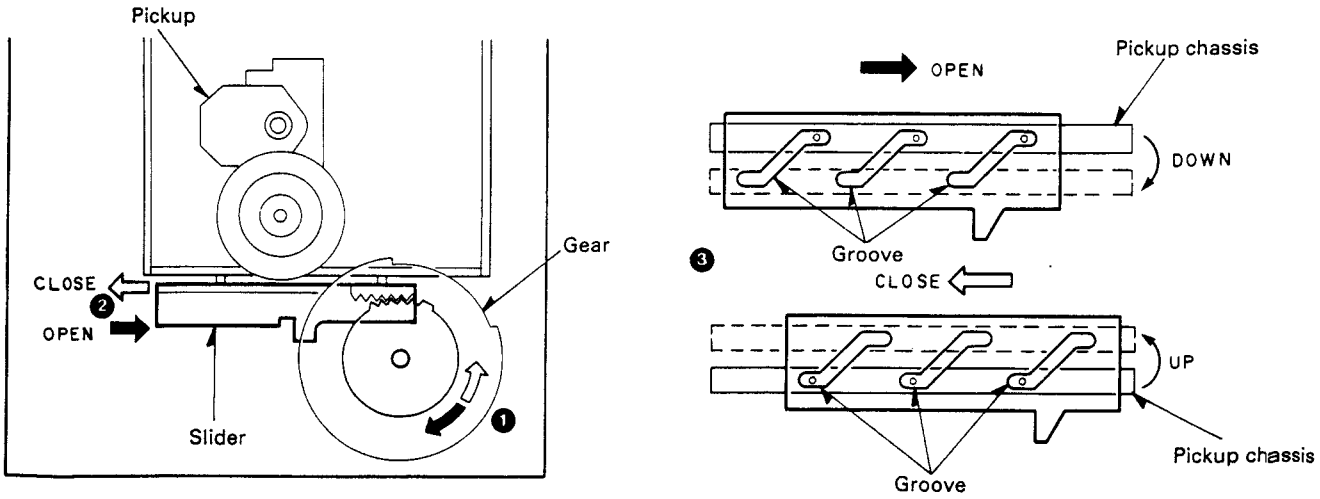


Fig. 3 Pickup chassis UP/DOWN movement

MECHANISM OPERATION DESCRIPTION

3. Gear Installing Position

When re-installing the gear after removing it, attach the gear at the position (Ⓐ) shown in the condition when the pickup chassis has been lowered.

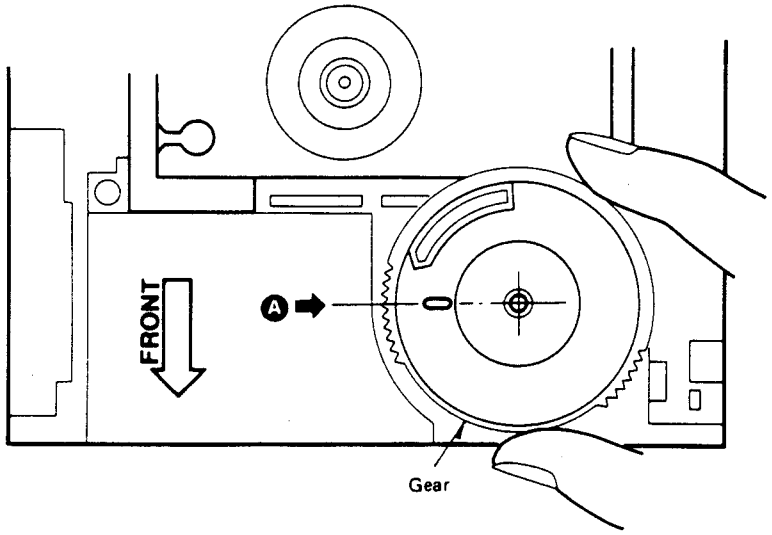


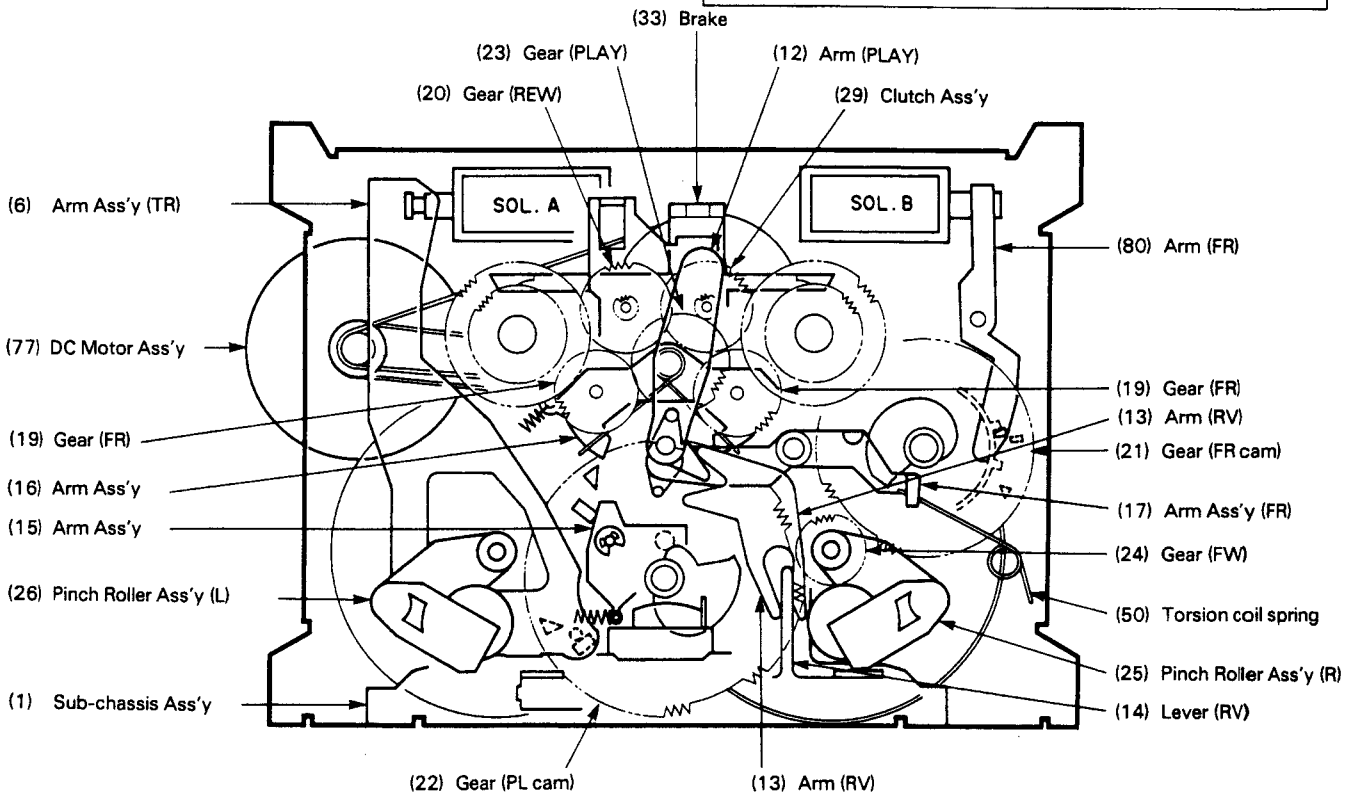
Fig. 4 Gear installing position

MECHANISM OPERATION DESCRIPTION

DECK

The illustrations are perspectives from the front unless otherwise specified.

RXD-25 is not provided with Auto Reverse Function. This description and drawings are based on the Auto Reverse Mechanism.



Parts Layout (Front perspective)

Driving power:	**130 g-cm or more**
Take up torque:	**35~75 g-cm**
FF/REW torque:	**70~160 g-cm**
Back tension torque:	**3~8 g-cm**

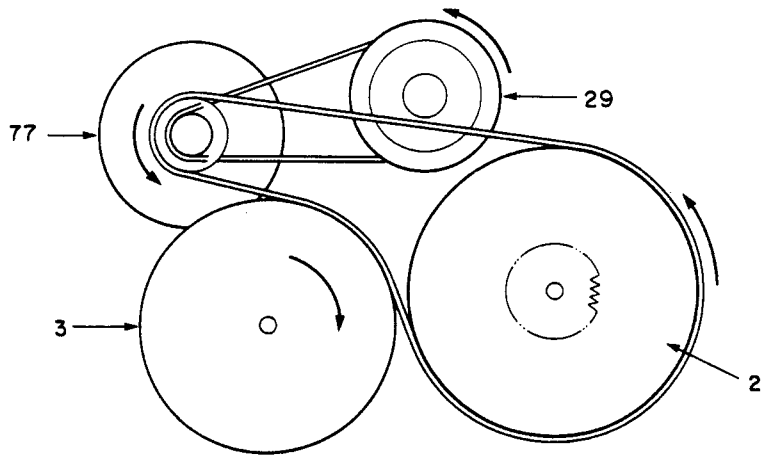


Fig. 1 Transmission of Rotation

MECHANISM OPERATION DESCRIPTION

1. STOP → PLAY/REC operation

1-1 By the signal from the microprocessor, the SOL.A is turned ON then immediately OFF.
This causes the shaft Ⓒ caulked on the TR Arm Ass'y to be released from the stopper Ⓐ on the play cam gear (22).
As the play cam gear (22) is pushed toward the direction of the arrow ❷ by the boss Ⓓ of the shift arm shaft (15), the play cam gear (22) is rotated slightly in the direction of the arrow ❸ and meshed with the flywheel gear (24).

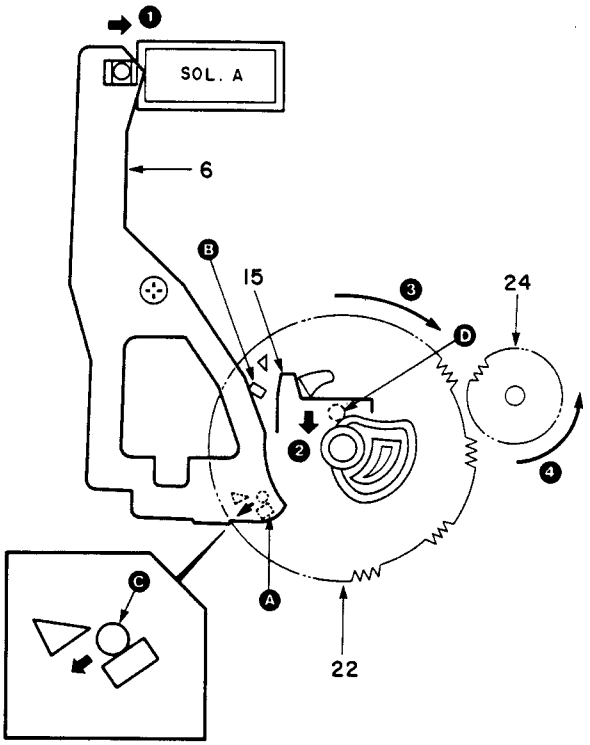


Fig. 2

1-2 When the flywheel gear (24) and play cam gear (22) are meshed, the shift arm shaft (15) is pulled up in the direction of the arrow ❻ by the cam Ⓔ on the play cam gear (22) until the caulked shaft Ⓒ on the TR Arm Ass'y (6) comes in contact with the stopper Ⓑ
Similarly, the head chassis (1) connected to it is also moved upward.

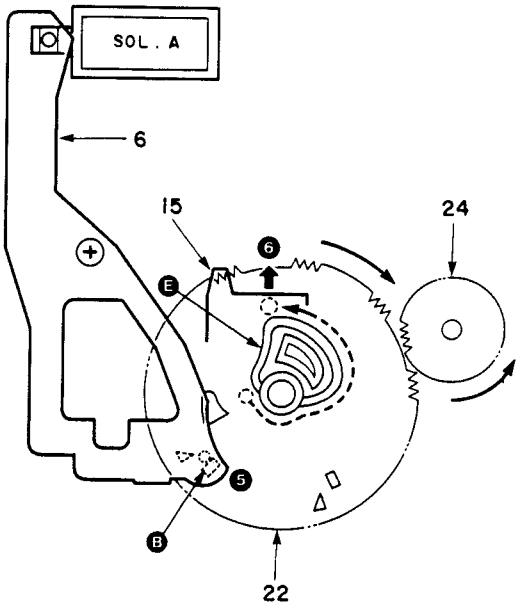


Fig. 3

MECHANISM OPERATION DESCRIPTION

1-3 When the head chassis (1) is moved up, the brake arm (33) is also pushed up in the direction of the arrow ❼ and released from the reel.
Then, the RV lever B (14) pushes the spring of the pinch roller (25) upward until it is pressed against the capstan, and tape starts to run at this time. At the same time, the play gear (12) is tilted toward the direction of the arrow ❾ by the center notch of the head chassis (1), the play gear arm (23) is meshed with the Reel Ass'y (79), it is rotated in the direction shown in the illustration, and tape starts to be wound.

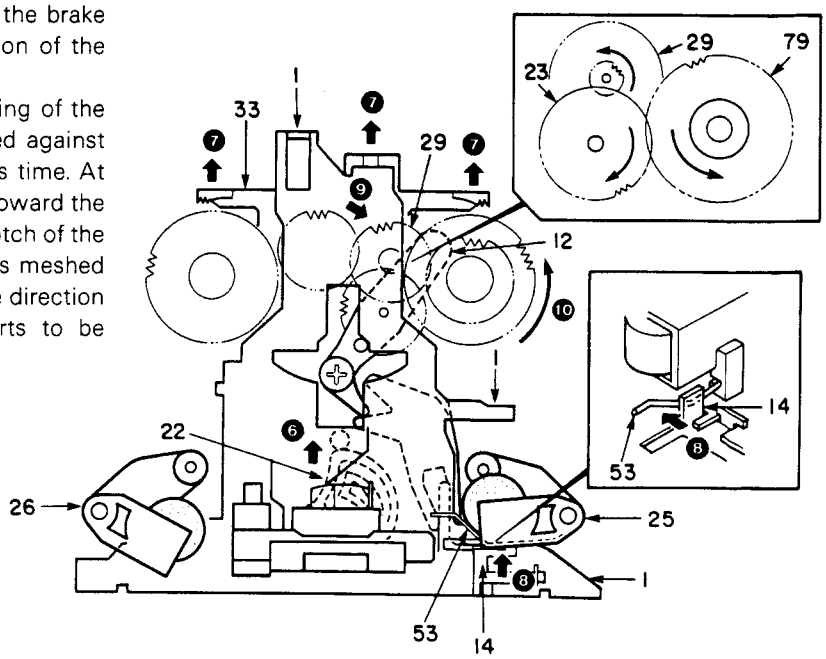


Fig. 4

2. PLAY/REC → STOP operation

When the SOL.A is turned ON again during play, the caulked shaft Ⓒ on the TR Arm Ass'y (6) is released from the stopper Ⓑ on the play cam gear (22), the play cam gear (22) starts rotation in the direction of the arrow, and it is stopped at the position of the stopper Ⓐ
At this time, the head chassis is returned by the spring in the direction of the arrow ❹ until the stop position.

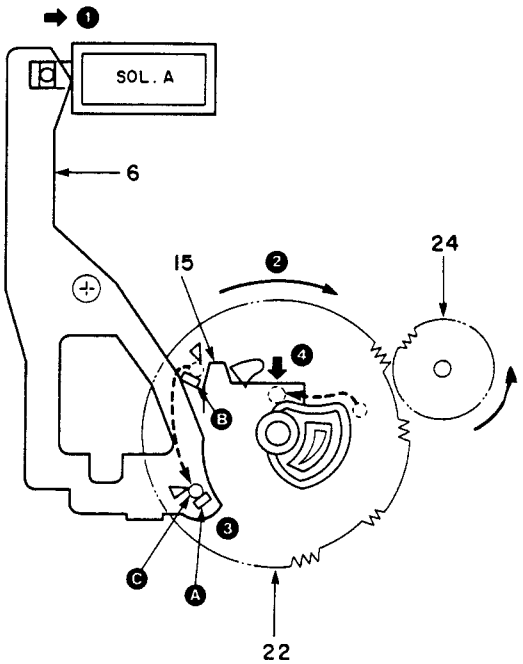


Fig. 5

MECHANISM OPERATION DESCRIPTION

3. FF/REW operations

By the signal from the microprocessor, the SOL.B is turned ON then immediately OFF. The trigger arm FR (80) is moved in the direction ❶, the projection Ⓕ is moved in the direction ❷ and released from the stopper Ⓗ
As the FR cam gear (21) is pushed in the direction of the arrow ❸ by the FR shift arm (17) and spring (84), the gear is moved slightly and meshed with the flywheel gear (24). The FR cam gear is further rotates, and is stopped at the position where the boss Ⓕ of the trigger arm FR (80) comes in contact with the stopper Ⓖ

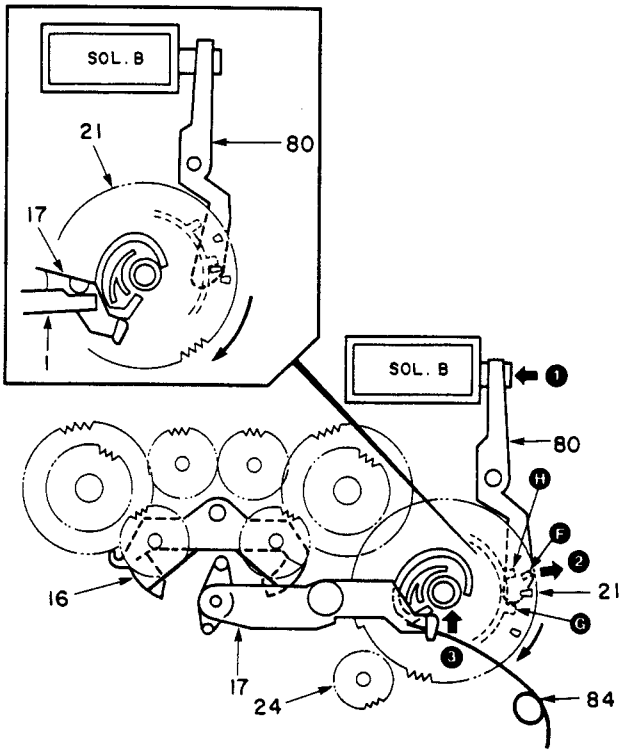


Fig. 6

4. FF operation

The FR shift arm (17) is moved in the direction of the arrow ❻ by the cam Ⓛ on the FR cam gear (21).
Then, the select arm (11) moves up along the shape of the mechanism base, and pushes up the FR arm spring (48). This causes the FR gear (19) on the FR arm (16) to be meshed with the clutch gear (29) and reel gear (79), which rotates in the direction of the arrow thereby putting the reel (79) into the FF operation.

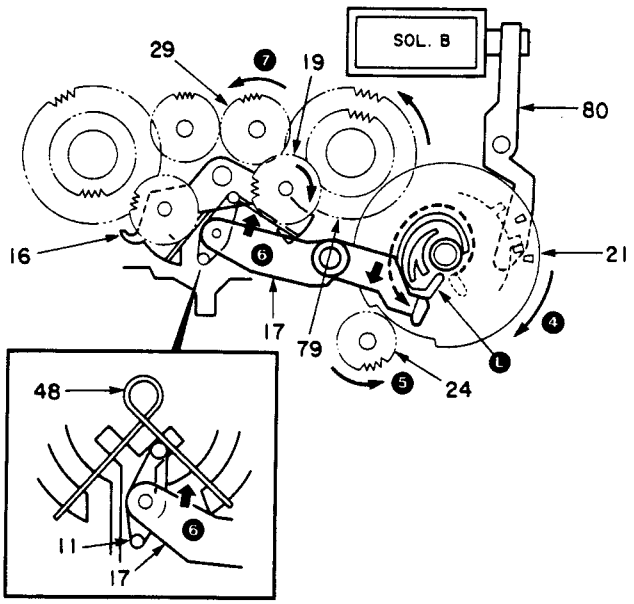


Fig. 7

MECHANISM OPERATION DESCRIPTION

5. REW operation

Similarly to the FF operation, the select arm (11) moves up in the direction of the arrow ❻ along the shape of the mechanism base, and pushes up the FR arm spring (48). This causes the FR gear (19) to be meshed with the REW gear (20) and reel gear (79), which rotates in the direction of the arrow thereby putting the reel (79) into the FF operation.

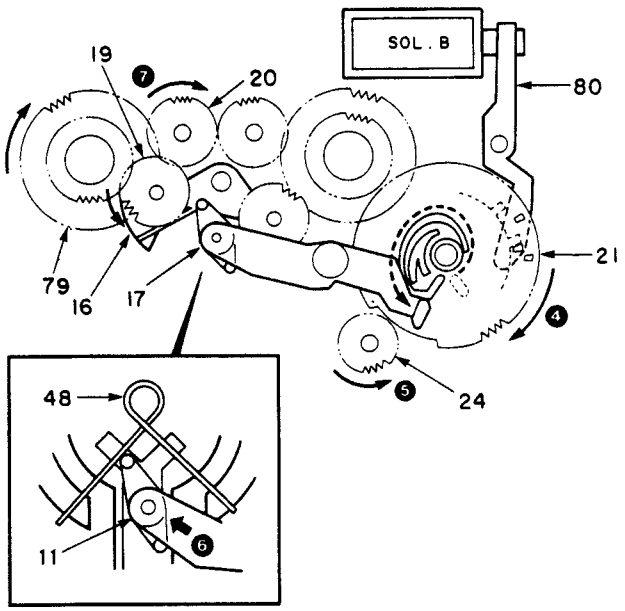


Fig. 8

6. Braking operation

When the select arm (11) moves upward, the "◿" portion of the select arm comes in contact with the "⌓" portion of the brake arm (33), and disengages the brake arm by lifting it in the direction of the arrow ❾

7. FF/REW switching

The FF and REW operations are switched by varying the tilting angle of the selector arm (11).

FF operation..... The SOL.B is turned OFF at the moment the trigger arm FR (80) is released from the stopper on the FR cam gear. As the FR lever (9) is still pulled by the spring (44), the select arm (11) moves upward in the direction of the arrow Ⓐ.

REW operation ... Similarly, when the SOL.B is maintained ON for a while, the select arm (11) moves upward with the FR lever (9) in the position indicated by the dotted line, so it moves up in the direction of the arrow Ⓑ causing the REW operation.

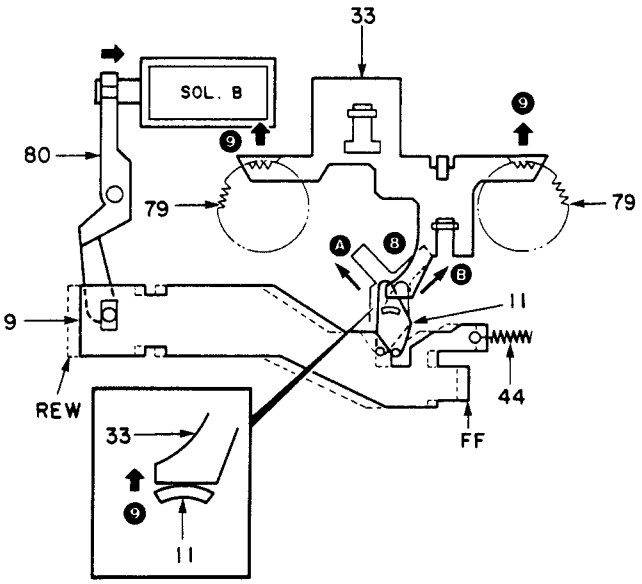


Fig. 9 (Rear perspective)

DECK

MECHANISM OPERATION DESCRIPTION

8. PLAY → CUE/REVIEW operation

8-1 When the SOL.B is turned ON during play, the FR cam gear (21) is meshed with the flywheel gear, and the FR shirt arm (17) is pushed down in the direction of the arrow ❷ by the cam on the FR cam gear (21). At this time, the select arm (11) on the other end of the FR shift arm (17) is pushed up in the direction of the arrow ❹, so that the cue operation takes place in the condition of Fig. 10 and the review operation takes place in the condition of Fig. 11.

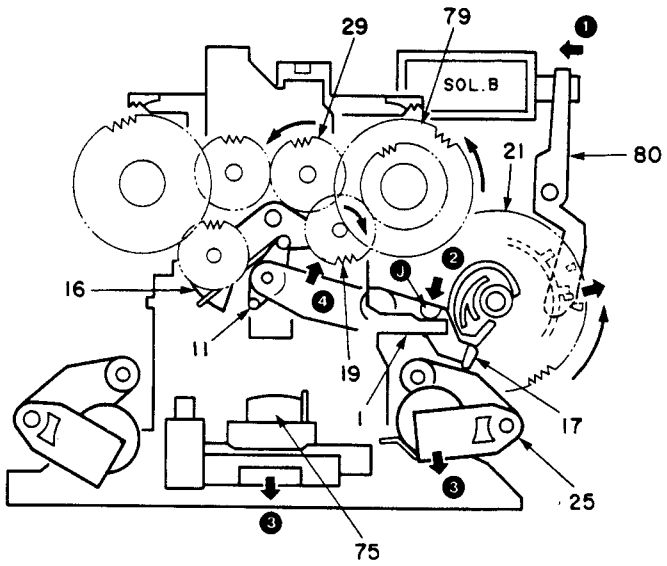


Fig. 10

8-2 The head chssis (1) is pushed down by the boss ❏ on the FR shift arm (17), and the Head Ass'y (75), tape and pinch roller (25) are released from the pressure against the capstan shaft.
The play gear arm (12) is located on the other end of the select arm (11) of the FR shift arm. When the head chassis (1) moves downward, the boss ❎ of the play gear arm (12) is moves along the center notch of the head chassis, thereby disengaging the play gear (23) an reel (79).
In Cue/Review operation, the reel is operated by the FR gear (19) similarly to the case of FF/REW operation.

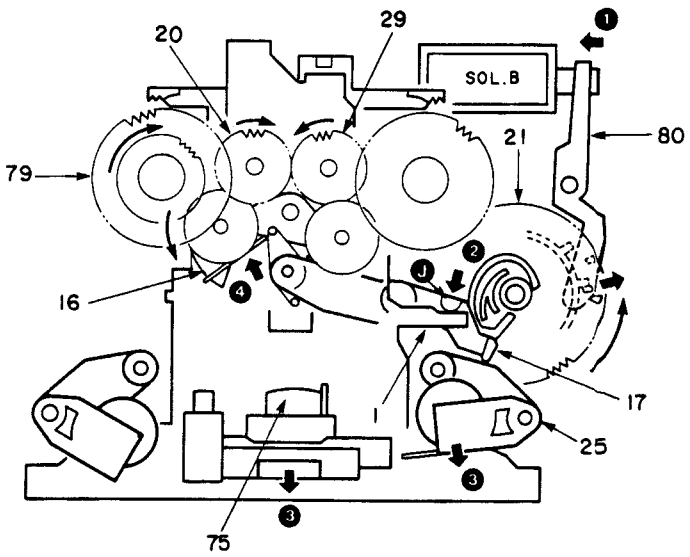


Fig. 11

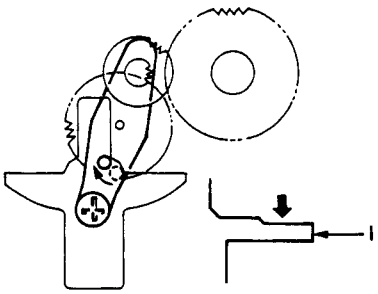


Fig. 12 CUE/REVIEW

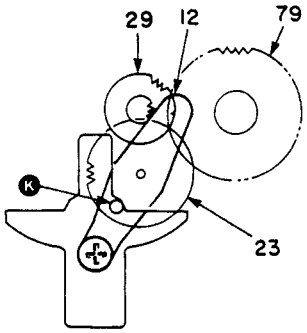


Fig. 13 PLAY

MECHANISM OPERATION DESCRIPTION

9. CUE/REVIEW → PLAY operation

When the SOL.B is turned ON, the trigger arm FR (80) moves in the direction of the arrow ❶, so the boss Ⓕ is moved in the direction of the arrow ❷ and released from the stopper Ⓖ. As the cam of the FR cam gear (21) is kept pushed in the direction of the arrow ❸ by the FR shift arm (17), the gear continues rotation until the boss Ⓕ comes in contact with the stopper Ⓗ.

When the FR shift arm (17) moves in the direction of the arrow ❸, the select arm (11) is moved down in the direction of the arrow, and the FR arm (16) is released from the reel.

As the head chassis (1) is no longer pushed by the boss Ⓙ of the FR shift arm (17), the chassis also moves up, the pinch roller is pushed against the capstan, the tape against the head, and the play operation starts.

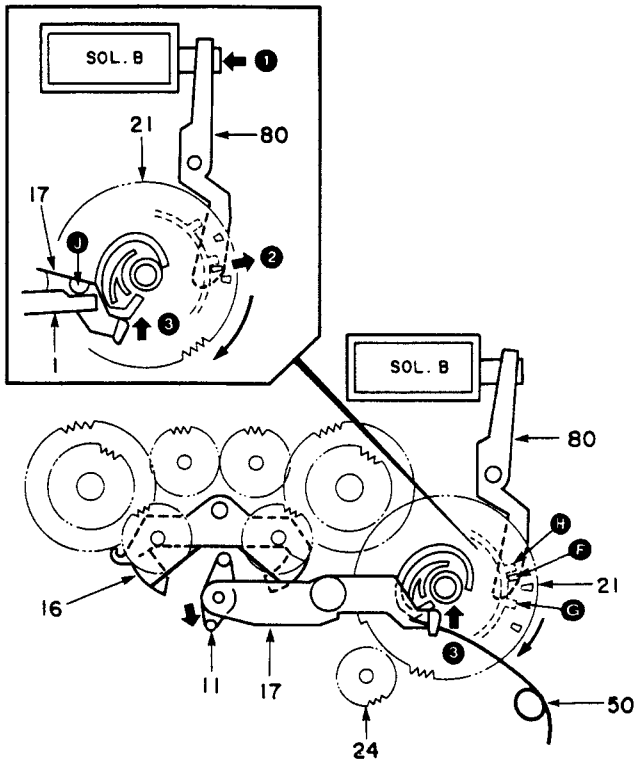


Fig. 14

MECHANISM OPERATION DESCRIPTION

10. FWD ↔ RVS switching

10-1 When the play cam gear (22) starts rotation in the direction of the arrow ❸, the boss Ⓜ of the RV lever A (5) moves to the left and right along the shape of the cam. Finally, when the play cam gear (22) has rotated by a 1/4 turn, one of the two tracks is selected.
The track to be selected is dependent on the operation of the SOL.A.

FWD direction

The SOL.A is turned OFF immediately after it is turned ON.
As the RV lever A (5) which is pulled by the spring (45) is in the FWD position, the boss Ⓜ moves along the outer track.
Because the RV lever A (5) and RV lever B (14) are connected as shown in the illustration, the RV lever B (14) also comes in the FWD position. The RV arm (13) and play gear arm (14), which are operated by the projection on the RV lever B (14), are moved in the directions of the arrows ❷ ❸, so the play gear (23) in the FWD mode is meshed with the Reel Ass'y (79) and clutch gear (29), rotating the Reel Ass'y in the FWD direction.
At this time, the head is also put in the FWD direction (position shown in the illustration) by the head select gear (34).

RVS direction

The SOL.A is maintained ON for a while after it is turned ON. Therefore, the TR Arm Ass'y (6) moves in the direction of the arrow ❷ as shown in the illustration, and the RV lever A (5) is pushed by it and moves in the RVS direction.

10-2 The boss Ⓜ on the RV lever A (5) moves along the inner track shown in the illustration, so the RV lever A (5) is fixed in the RV position shown in the illustration. The RV lever B (14) is also put in the RVS position shown in the illustration. As the projection on the RV lever B moves the RV arm (13) and play gear arm in the directions of the arrow ❷ ❸, the play gear (23) in the RVS mode is meshed with the REW gear (20) and Reel Ass'y (79), rotating the Reel Ass'y (79) in the RVS direction.
At this time, the head is also put in the RVS direction by the head select gear (34).

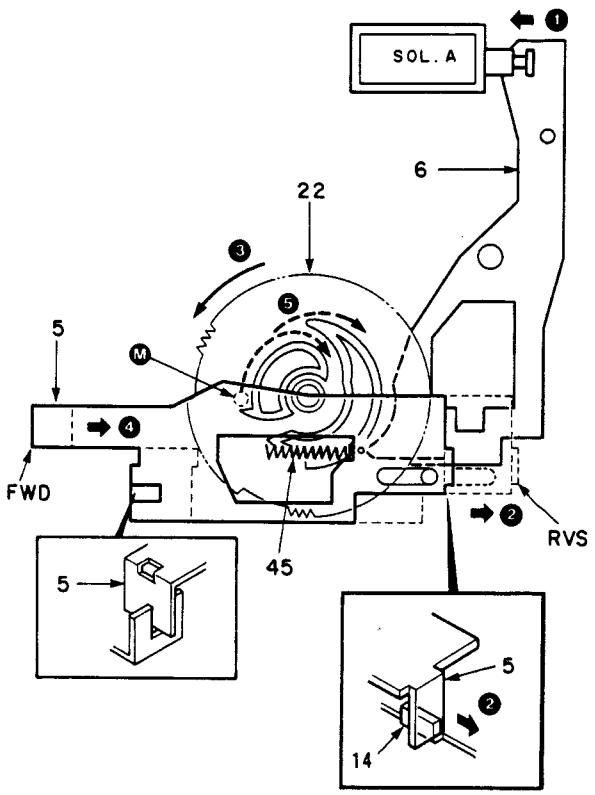


Fig. 15 (Rear perspective)

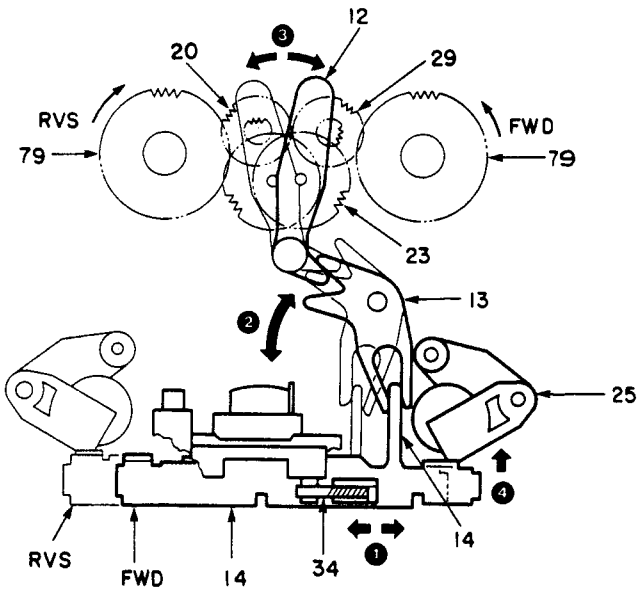


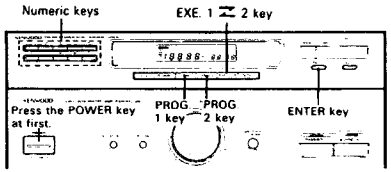
Fig. 16

Operation of timer

Be sure the correct date and time are set before setting the timer.

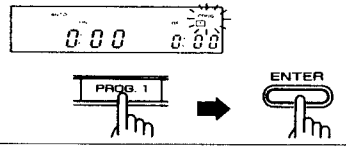
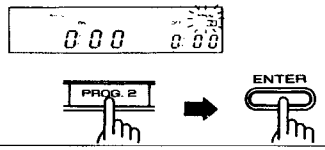
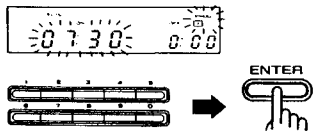
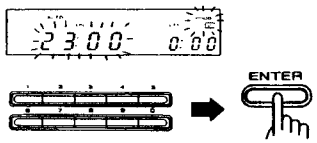
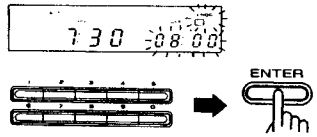
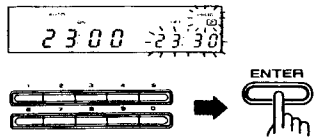
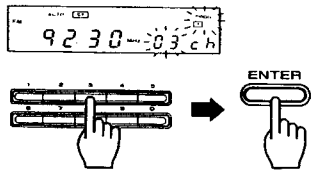
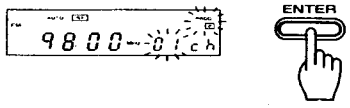
■ Preparations

The preparations consist of the setting of the timer ON and OFF times (and the preset station No. when receiving radio broadcast is required).



Example: Setting timer radio reception from 7:30 AM to 8:00 AM of preset station No. 3 in timer program 1.

Example: Setting timer CD playback from 11:00 PM to 11:30 PM in timer program 2.

	Timer reception/recording of radio broadcast	Timer playback of CD or tape
1	Enter the program setting mode. Press the PROG. 1 key. Press the ENTER key. 	Enter the program setting mode. Press the PROG. 2 key. Press the ENTER key. 
2	Input the ON time. Press "0", "7", "3", and "0" to input 7:30 AM. Press the ENTER key. 	Input the ON time. Press "2", "3", "0", and "0" to input 11:00 PM. Press the ENTER key. 
3	Input the OFF time. Press "0", "8", "0", and "0" to input 8:00 AM. Press the ENTER key. 	Input the OFF time. Press "2", "3", "3", and "0" to input 11:30 PM. Press the ENTER key. 
4	Select the preset station No. Press "3". Press the ENTER key.  Now the time setting is complete.	Press the ENTER key.  Now the time setting is complete.

* To change the ON and OFF time, the procedure above must be repeated from the beginning.

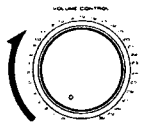
Be sure the correct date and time are set before setting the timer.

■ Receiving radio broadcast with timer

Preparations
1. Perform the preparation steps 1 to 4.
2. Remove disc from the CD player.
3. Remove tapes from the cassette decks.

In case of a mistake, re-start from the beginning.

1 Adjust the volume and tone.

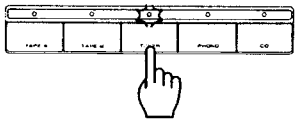


2 Specify the execution of timer program.

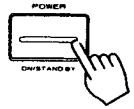
Press the EXE. 1 ⇄ 2 key.

- Check the lighted Program No. indicator.

3 Select the TUNER input.



4 Switch the power to STAND-BY.



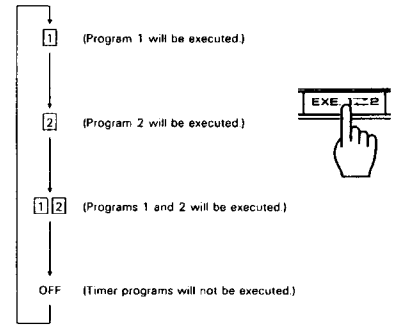
- The displays on the system components are extinguished.

5 Check that the TIMER REC function is OFF.

The TIMER REC indicator should go off.

How to specify the execution

Every time the EXE. 1 ⇄ 2 key is pressed, one or both of the program No. indicators light(s) in the order as shown below. The lighted indicator(s) indicate(s) the timer programs the execution of which are specified.


1 (Program 1 will be executed.)
2 (Program 2 will be executed.)
1 2 (Programs 1 and 2 will be executed.)
OFF (Timer programs will not be executed.)
EXE. 1 ⇄ 2

- When the timer is not to be used, be sure that both of the Program No. indicators are "off".

When the set time comes

The power of the system is turned ON when the timer ON time comes, and reception of the set station starts. The power is turned off at the timer OFF time.

To continue reception beyond the timer OFF time

If it is before the OFF time, press the EXE. 1 ⇄ 2 key so that the Program No. indicator goes "off".

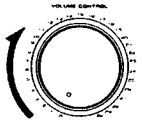
If it is after the OFF time and power has already been turned off, press the POWER key to turn the power ON.

Be sure the correct date and time are set before setting the timer.

■ Playing CD with timer

Preparations
1. **Perform the preparation steps 1 to 4 described on page 83.**
2. **Place a disc in the CD player.**
3. **Remove tapes from the cassette decks.**

1 Adjust the volume and tone.

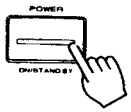


2 Specify the execution of timer program.

Press the EXE. 1 ⇄ 2 key.

- Check the lighted Program No. indicator.

3 Switch the power to STAND-BY.



- The displays on the system components are extinguished.

4 Check that the TIMER REC function is OFF.

The TIMER REC indicator should go off.

When the set time comes

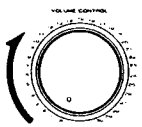
The power of the system is turned ON when the timer ON time comes, and playback of the disc starts. The power is turned off at the timer OFF time.

Be sure the correct date and time are set before setting the timer.

■ Playing tape(s) with timer

Preparations
1. **Perform the preparation steps 1 to 4 described on page 83.**
2. **Insert tapes in the cassette decks (both Decks A and B can be used, but Deck A in given priority).**

1 Adjust the volume and tone.

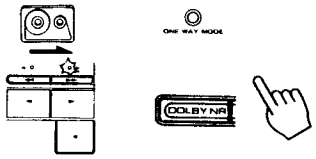


2 Specify the execution of timer program.

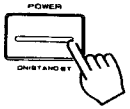
Press the EXE. 1 ⇄ 2 key.

- Check the lighted Program No. indicator.

3 Insert a tape and determine the playback condition.



4 Switch the power to STAND-BY.



- The display on the system components are extinguished.

5 Check that the TIMER REC function is OFF.

The TIMER REC indicator should go off.

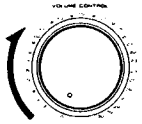
Operation of timer

Be sure the correct date and time are set before setting the timer.

■ Recording radio broadcast with timer

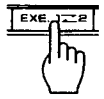
Preparations
1. **Perform the preparation steps 1 to 4 described on page 83.**
2. **Remove disc from the CD player.**
3. **Insert a recordable tape in Deck B.**

1 Adjust the volume and tone.



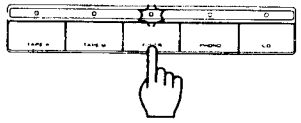
2 Specify the execution of timer program.

Press the EXE. 1 ⇄ 2 key.

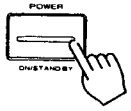


- Check the lighted Program No. indicator.

3 Select the TUNER input.



4 Switch the power to STAND-BY.



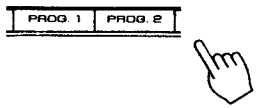
- The displays on the system components are extinguished.

5 Set the TIMER REC function to ON.

The TIMER REC indicator should light up.

■ To check the timer setting contents

Press the PROG. 1 or PROG. 2 key.



- The setting contents of Program 1 is displayed when the PROG. 1 key is pressed, and those of Program 2 is displayed when the PROG. 2 key is pressed.
- The displayed contents include a 5-seconds display of the ON time and OFF time and another 5-seconds display of the receiving frequency and preset station No.

Notes:
1. Do not press the EXE. 1 ⇄ 2 key or the POWER key while the power is turned ON by the timer. Otherwise malfunction may occur.
2. Be careful that the setting time of the two programs are not overlapped.
3. When the ON time of a timer the execution of which has been specified comes during radio reception, the station being received is switched to the station set by the timer program. Use special care against this fact when you a recording radio broadcast.
4. The timer program contents cannot be cleared. Therefore, when the timer is not to be used, be sure to cancel the execution specification so that the indicators are "off".

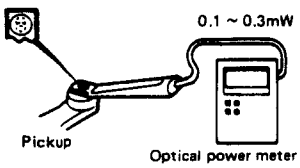
ADJUSTMENT

<CD>

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
1	LASER POWER	–	Apply the sensor section of the optical power meter on the pickup lens.	Short-circuit pins TEST and turn the power on to enter the test mode. Turn the gear clockwise to move the pickup outwards by hand. Press the CHECK key to check that the LD emits light. Then, confirm that the display is "02".	–	On the power from 0.1 to 0.3mW, when the diffraction grating is correctly aligned with the RF level of 1.0Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable. (photo. 1 ~ 4)	(a)
2	VCO (NORMAL)	–	Connect a frequency counter to PLCK (TP9). (X32)	Press the STOP key. and confirm that the display is "01".	L2 (X32)	4.28MHz ±20kHz	(b)
3	TRACKING ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32 CN6-1) CH2: TE (X32 CN6-6)	Press the REPEAT key to open the tray. Load a disc and close the tray by pushing it by hand. Then, press the CHECK key. Confirm that the display is "03".	TE BALANCE VR1 (X32)	Symmetry between upper and lower patterns, or DC=0±0.05V (photo. 5)	(c)
4	FOCUS ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32 CN6-1) CH2: TE (X32 CN6-6)	Press the PLAY key. Confirm that the display is "05".	FE BALANCE VR2 (X32)	Optimum eyepattern (photo. 6)	(d)
5	FOCUS GAIN	Test disc Type 4 Apply signal of 800Hz, 0.2Vrms to CN6 pin 2 and 3. (X32)	Connect an LPF to CN6 pin 2 and 3, to which connect an oscilloscope or two AC voltmeters. (X32)	Press the PLAY key. Confirm that the display is "05".	FOCUS GAIN VR3 (X32)	Two VTVMs should read the same value.	(e)
6	TRACKING GAIN	Test disc Type 4 Apply signal of 1kHz, 0.2Vrms to CN6 pin 5 and 6. (X32)	Connect an LPF to CN6 pin 5 and 6, to which connect an oscilloscope or two AC voltmeters. (X32)	Press the PLAY key. Confirm that the display is "05".	TRACKING GAIN VR4 (X32)	Two VTVMs should read the same value.	(e)

(Note) Type 4 disc: SONY YEDS-18 Test Disk or equivalent.
LPF: Around 47kΩ+390pF or so.

(a) Laser Power



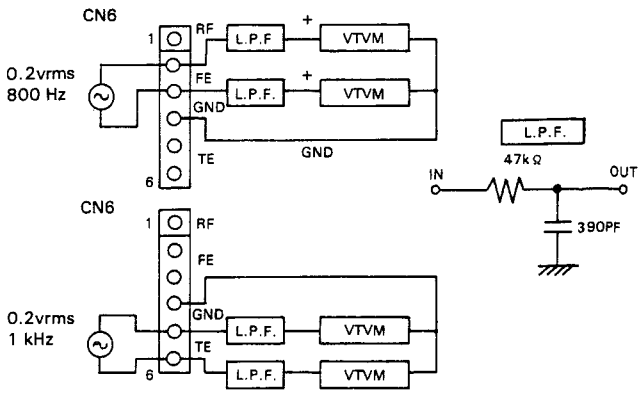
(e) Focus Gain, Tracking Gain

FOCUS GAIN

Two VTVMs should read the same value

TRACKING GAIN

Two VTVMs should read the same value



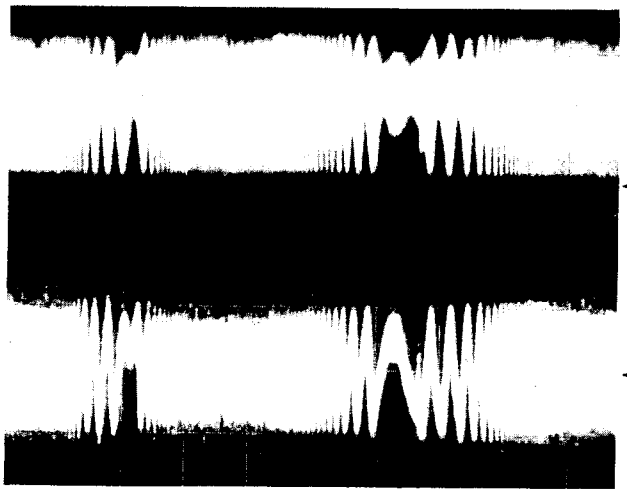
ADJUSTMENT

(a) DIFFRACTION GRID ADJUSTMENT

(20msec/div)

(Photo. 1)

- RF signal and T.Error signal after diffraction grating adjustment.

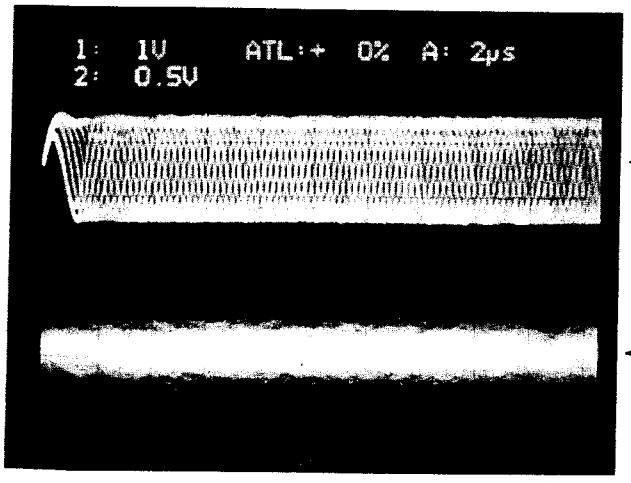


(20msec/div)

(Photo. 2)

- RF signal and T.Error signal when there is small diffraction grating position error.
- The T.Error signal level is small, and the envelope is as shown in the diagram below.

Trigger point



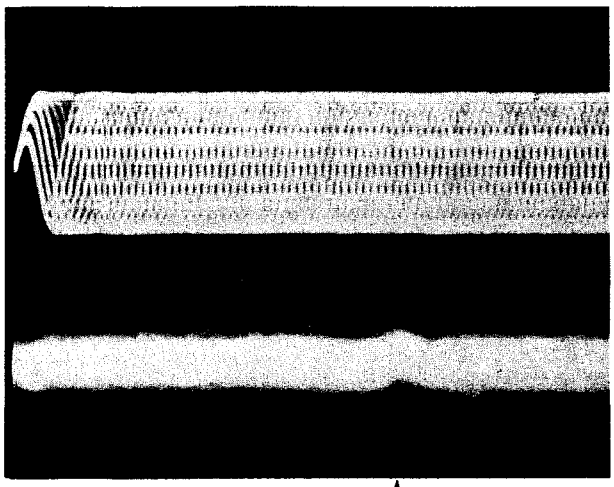
Projection

(2μsec/div)

(Photo. 3)

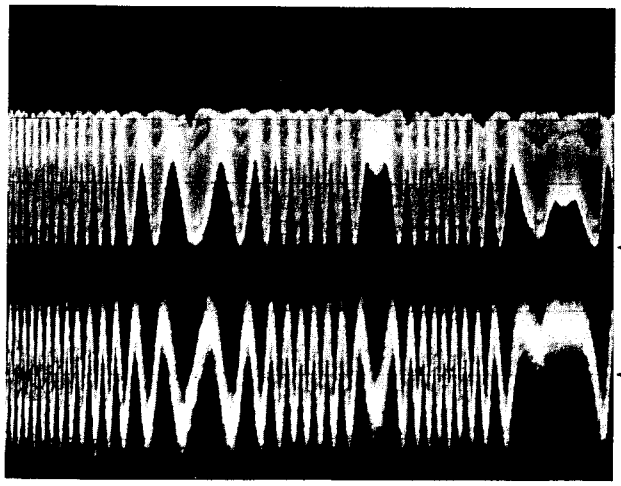
- RF signal and T.Error signal in test mode (with focusing ON).
- When the sub-beam traces the same bit series as the main beam during diffraction grating adjustment, bringing the RF trigger point to the position shown in the Photo causes a "projection" to be observies in the T.Error waveform.

ADJUSTMENT



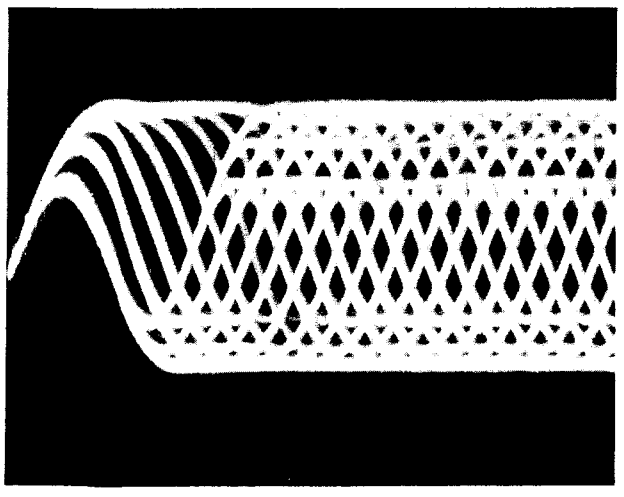
(Photo. 4)

- RF signal and E.Spot signal in test mode (PLAY).
- If the diffraction grating has been adjusted properly, the influence of triggering is observed on the E.Spot waveform of approx. 12μs after RF signal, in the form of a projection.



(Photo. 5)

- RF signal and T.Error signal; in test mode (Focusing ON). (Disc type 4)
- Adjust T.Error so that the waveform is symmetrical above and below 0V.



(Photo. 6)

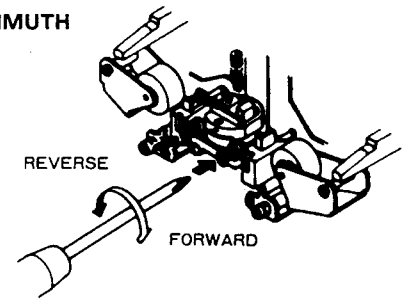
- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset adjustments so that each of the center cross points are focused into one point on the display. The crossing points above and below the center shall also be displayed clearly.

ADJUSTMENT

<TUNER>

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION			SELECTOR: FM				
1	DISCRIMINATOR	(A) 98.0MHz 1kHz, ±75kHz dev (M,X type) 1kHz, ±40kHz dev (E,T type) 60dBμ (ANT input)	Connect a DC voltmeter between TP3 and TP4. (X28-)	AUTO or MONO 98.0MHz	L2 (X28-)	0V	(g)
2	VCO	(A) 98.0MHz 0 dev 60dBμ (ANT input)	Connect a frequency counter to TP5 and GND. (X28-)	AUTO 98.0MHz	VR2 (X28-)	19.00kHz	(h)
3	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±68.25kHz dev Pilot: ±7.5kHz dev (M,X type) 1kHz, ±40kHz dev Pilot: ±6kHz dev (E,T type) 60dBμ (ANT input)	(B)	MONO 98.0MHz	IFT (W02-)	Minimum distortion	
4	SEPARATION (E,T type only)	(C) 98.0MHz 1kHz, ±40kHz dev Pilot ±6kHz dev Selector: L or R 60dBμ (ANT input)	(B)	AUTO 98.0MHz	VR4 (X28-)	Minimum crosstalk	
5	TUNING LEVEL	(A) 98.0MHz 1kHz, ±75kHz dev (M,X type) 1kHz, ±45kHz dev (E,T type) 14dBμ(ANT input) 75Ω 18dBμ(ANT input)300Ω	(B)	AUTO or MONO 98.0MHz	VR1 (X28-)	Adjust VR1 and stop at the point where [X14] FL1 (TUNED) goes on.	
AM(MW) SELECTION			SELECTOR: AM(MW) (Singapore made only)				
(1)	TUNING LEVEL	(D) 1008kHz 400Hz, 30% mod 26dBμ (ANT input)	(B)	1008kHz	VR3 (X28-)	Adjust VR3 and stop at the point where [X14] FL1 (TUNED) goes on.	

(f) AZIMUTH



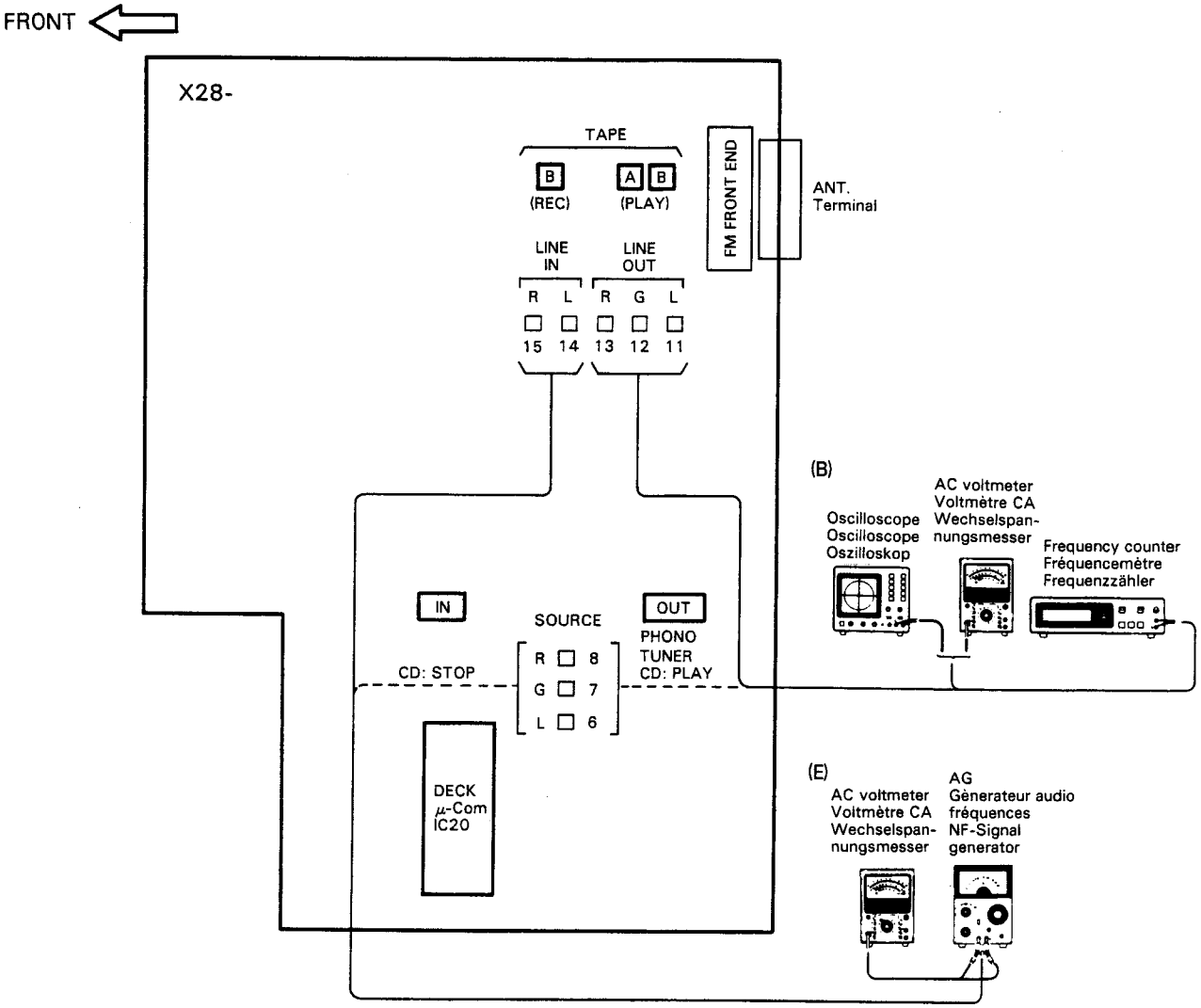
ADJUSTMENT

<DECK>

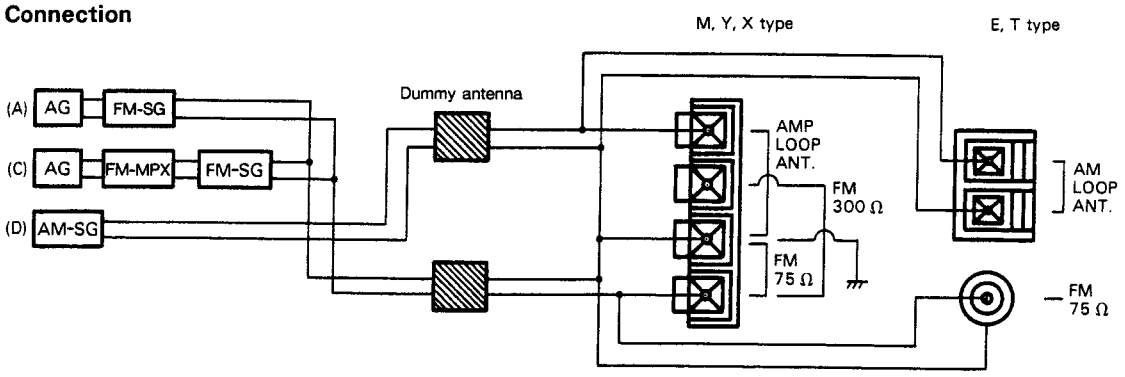
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE TAPE DECK SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
CASSETTE DECK SECTION		TAPE:NORMAL, DOLBY:OFF, INPUT:LINE				0dBs=0.775V	
I REC/PLAY HEAD							
[1]	DEMAGNETIZATION	–	–	POWER: OFF Remove the cassette door.	REC/PLAY head	Demagnetize the REC/PLAY head with a head demagnetizer.	
[2]	CLEANING	–	–	PLAY	REC/PLAY head erase head, capstan, pinch roller.	Clean the REC/PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
[3]	AZIMUTH	TCC-153 MTT-114 10kHz,-10dB	Connect AC voltmeter to TP11(Lch) or TP13(Rch)	PLAY	Azimutht adjustment screw	Maximum output.	(f)
II PC BOARD (X28-2242-70, X28-2262-70)							
(1)	TAPE SPEED (HI SPEED)	TCC-110 MTT-111 3kHz	Connect a counter to TP11(Lch) or TP13(Rch)	Connect between GND and TP19(A) or TP20(B) PLAY	DECK A: VR20 DECK B: VR22	Adjust the tape speed so that a 6kHz signal is produced at the center of the tape.	
(2)	TAPE SPEED (NORMAL)	TCC-110 MTT-111 3kHz	Connect a counter to TP11(Lch) or TP13(Rch)	No connect between GND and TP19(A) or TP20(B)	DECK A: VR19 DECK B: VR21	Adjust the tape speed so that a 3kHz signal is produced at the center of the tape.	
III PC BOARD (X28-2242-70, X28-2262-70)							
<1>	PLAYBACK LEVEL	MTT-150 400Hz	Connect an AC voltmeter to TP11(Lch) or TP13(Rch)	PLAY	DECK A: VR11(L) VR12(R) DECK B: VR13(L) VR14(R)	Output level: -6.0dBs	
		MTT-256 315Hz				Output level: -9.0dBs	
		MTT-256U,TCC-160 315Hz				Output level: -5.0dBs	
<2>	BIAS CURRENT	(E) 1kHz,(-30dBs) 10kHz,(-30dBs)	Connect an AC voltmeter to TP11(Lch) or TP13(Rch)	This system has a CRLS function. It cannot turn the electronic variable resistor up or down. So to adjut the REC level, hold down the CRLS control for more than three seconds, and set the electronic variable resistor to -15dB (initial value). Then, adjust the input level so that the REC monitor output is -29dBs.	VR17(L) VR18(R)	Record 1kHz and 10kHz in alternation and adjust the variable resistors which control the bias current so that the same playback level is obtained.	
<3>	RECORD LEVEL	(E) 1kHz,-10dBs	Connect an AC voltmeter to TP11(Lch) or TP13(Rch)	Record playback a 1kH signal under the conditions set in <2>.	VR15(L) VR16(R)	Adjust the variable resistors so that a playback level of -9dBs is obtained.	

RXD-25/25L

ADJUSTMENT



Connection

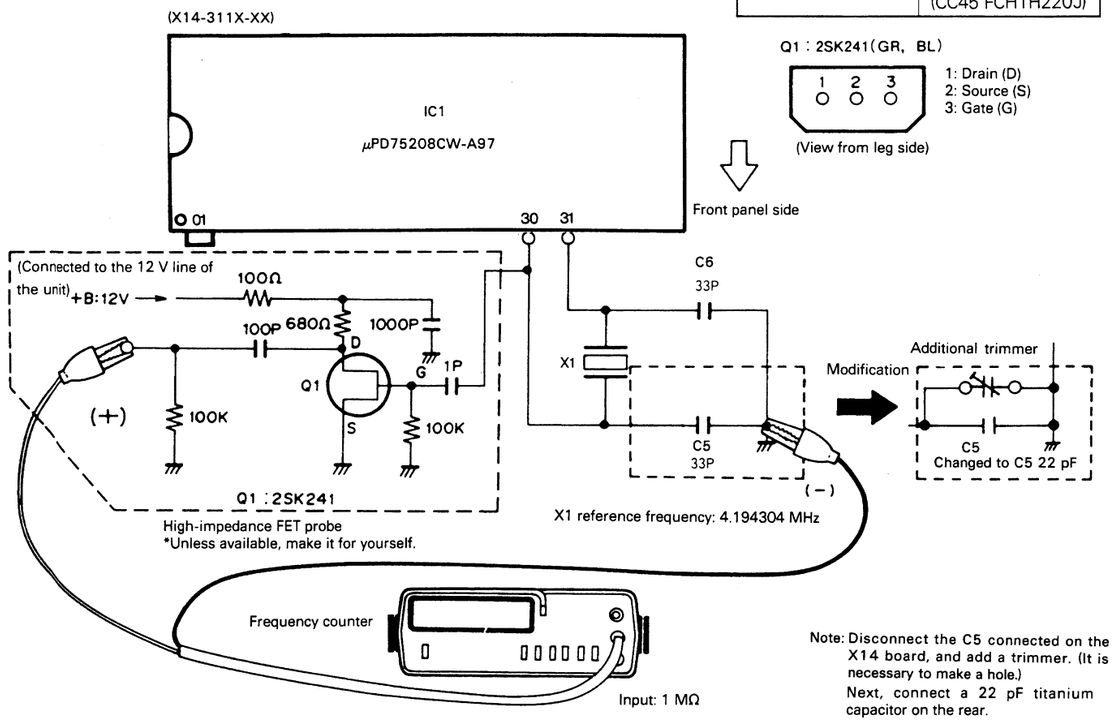


ADJUSTMENT

SERVICE POINT

1. Timer accuracy improvement method:

Capacitance value of additional trimmer	C5 constant modification
20 pF (red), C05-0303-05	22 pF titanium capacitor (CC45 FCH1H220J)



Note: Disconnect the C5 connected on the X14 board, and add a trimmer. (It is necessary to make a hole.)
Next, connect a 22 pF titanium capacitor on the rear.

The timer accuracy is within ±40 seconds for one month as a standard. For improved timer accuracy, perform the following procedure:

(1) If the timer accuracy is without the standard, replace X1 (L77-1176-05) near the microprocessor IC on a printed board (X14-).

(2) Even if within the standard, for further improved accuracy, change the constant of C5 in the crystal oscillation circuit of microprocessor IC1 and add a trimmer.

Adjustment method (Use a high-impedance buffer to avoid frequency deviation.)

Connect a high-accuracy frequency counter to pin 30 by way of the FET probe shown above, and adjust the frequency fully up to the first digit of the X1 reference frequency 4,194,304 Hz. (Connect the negative (—) side of the frequency counter to the GND side of C5.)

Notes: 1. As regards the positive (+) side of the frequency counter, arrange as short a distance as possible between pin 30 of IC1 and 1P of the input stage of the FET probe.

2. Perform the trimmer adjustment after energization of around 10 minutes at normal temperature.

(3) Monthly error calculation method

For example, when the result of measurement at pin 30 by the frequency counter is fx = 4,194,275 Hz...

$$\text{Monthly error [sec]} = \frac{fx - fo}{fo} \times \text{the number of seconds taken for one month}$$

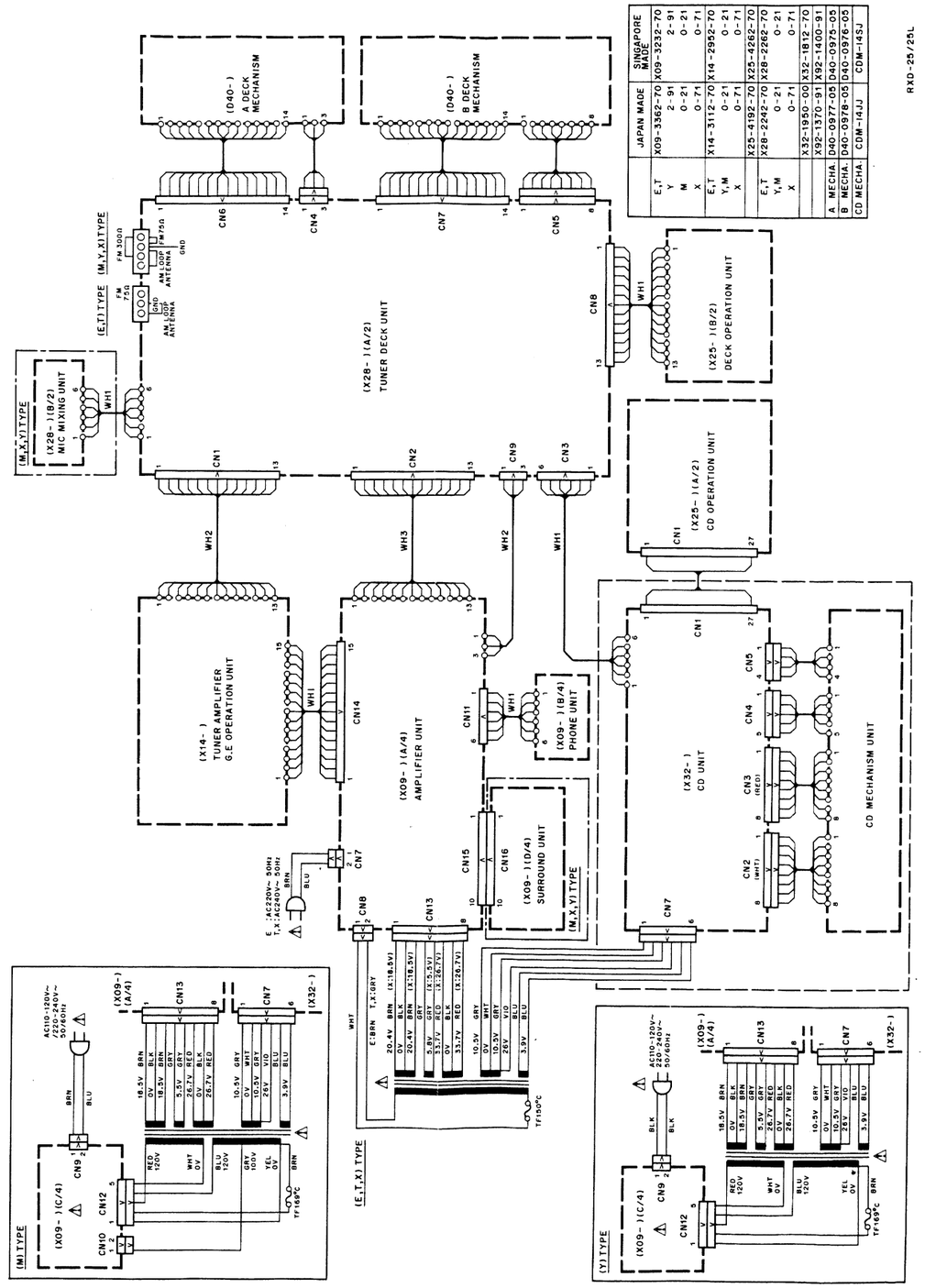
$$= \frac{4,194,275 - 4,194,304}{4,194,304} \times (60 \times 60 \times 24 \times 30)$$

$$= -17.9 \text{ [sec]}$$

* A minus value as the monthly error means a loss.

RXD-25/25L

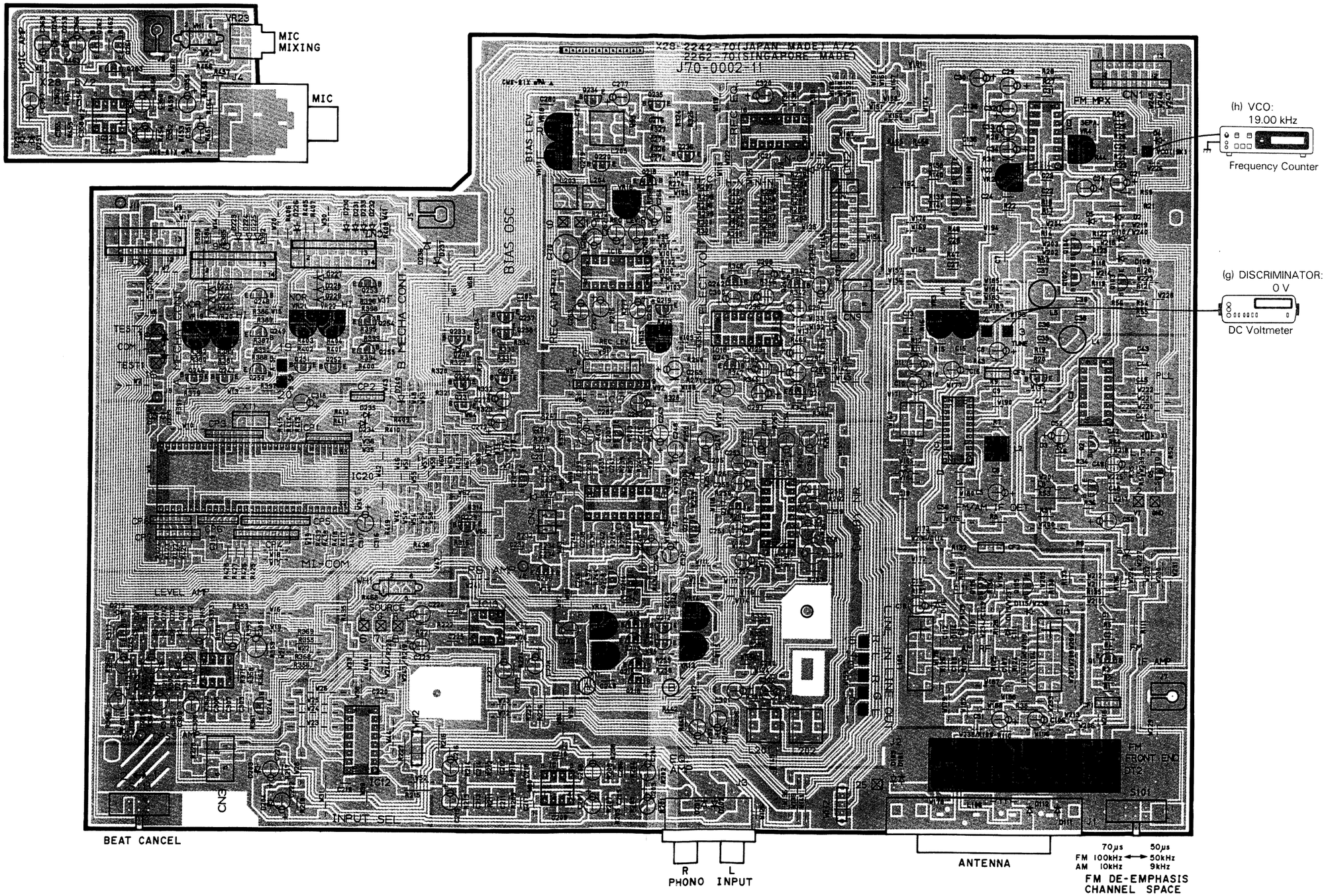
WIRING DIAGRAM



		JAPAN MADE	SINGAPORE MALAYSIA
	E,T	X09-3362-70	X09-3232-70
	Y	2-91	2-91
	M	0-21	0-21
	X	0-71	0-71
	E,T	X14-3112-70	X14-2952-70
	Y,M	0-21	0-21
	X	0-71	0-71
	E,T	X25-4192-70	X25-4262-70
	Y,M	X28-2242-70	X28-2262-70
	X	0-21	0-21
		0-71	0-71
		X32-1950-00	X32-1812-70
		X92-1370-91	X92-1400-91
A MECHA.		D40-0977-05	D40-0975-05
B MECHA.		D40-0978-05	D40-0976-05
CD MECHA.		CDM-14JJ	CDM-14SJ

PC BOARD (Component Side View)

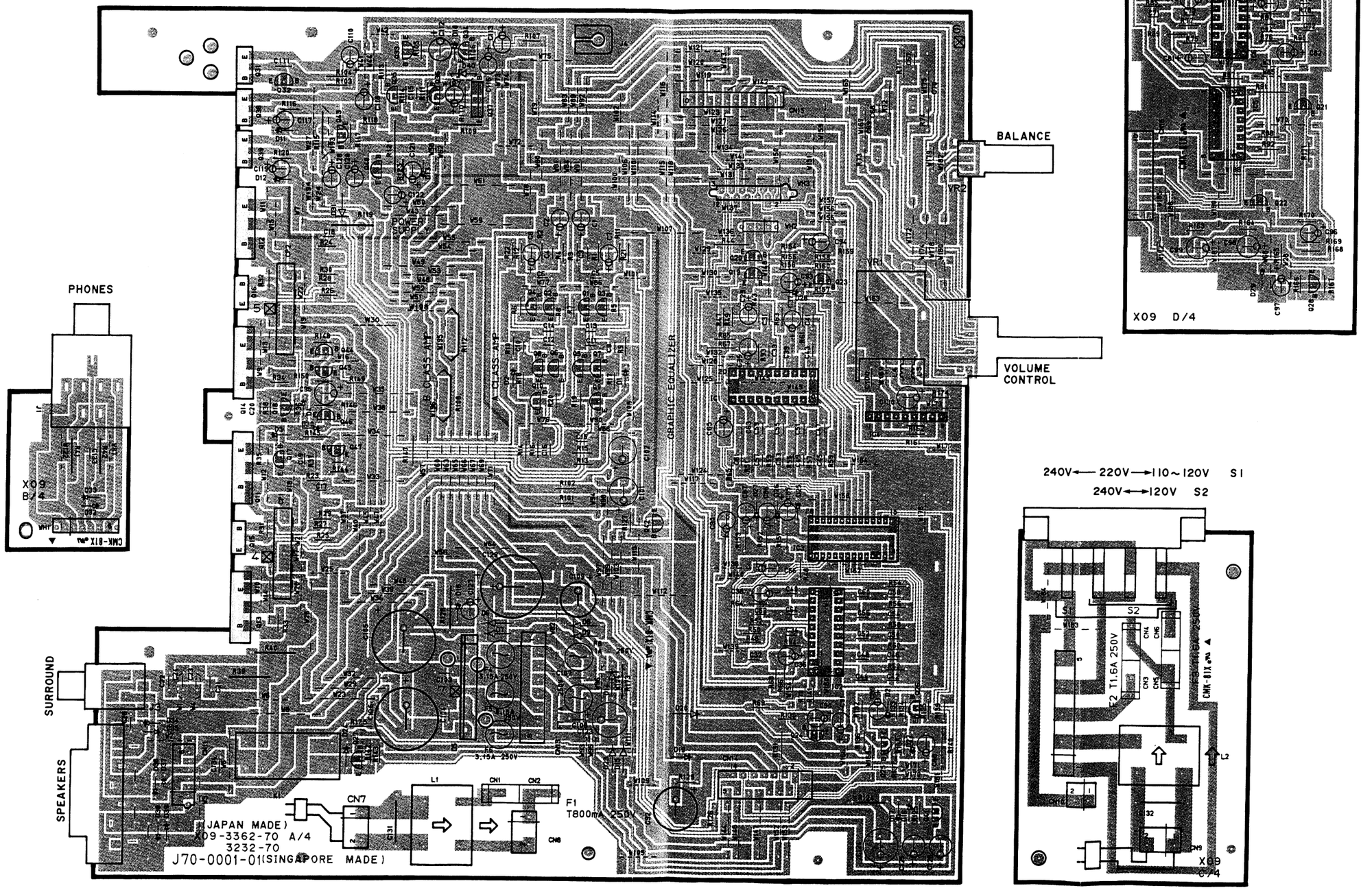
RECORD/PLAY BACK UNIT (X28-)

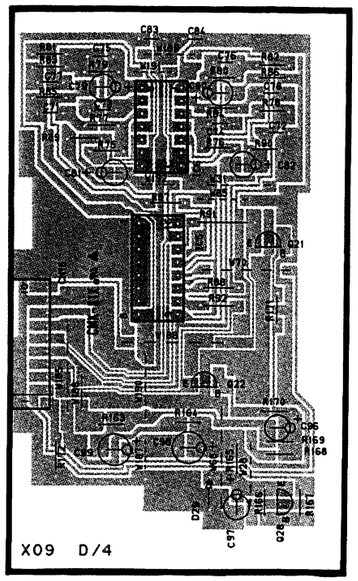


Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Component Side View)

AUDIO UNIT (X09-)

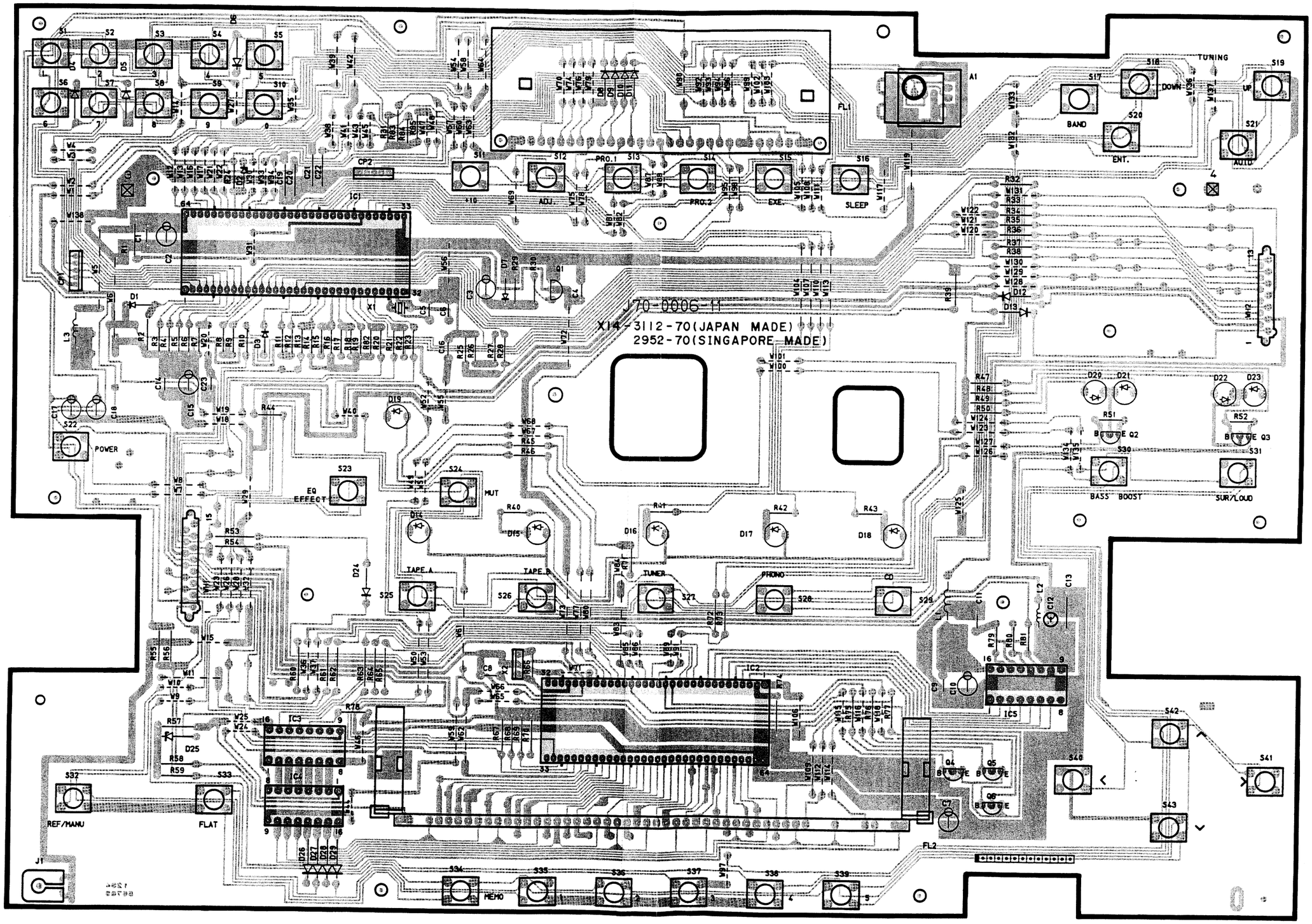




Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Component Side View)

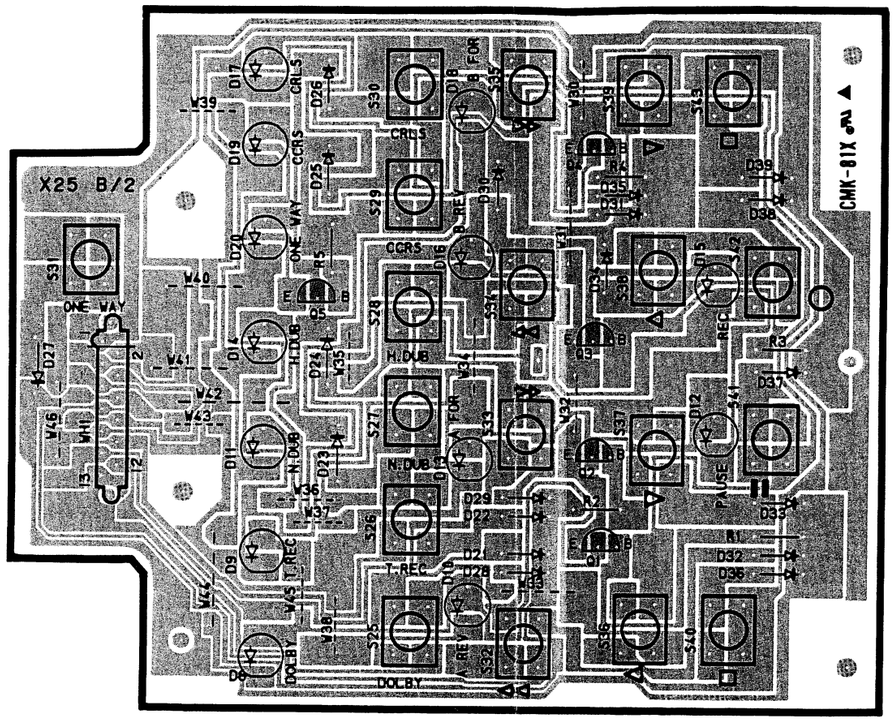
DISPLAY UNIT (X14-)

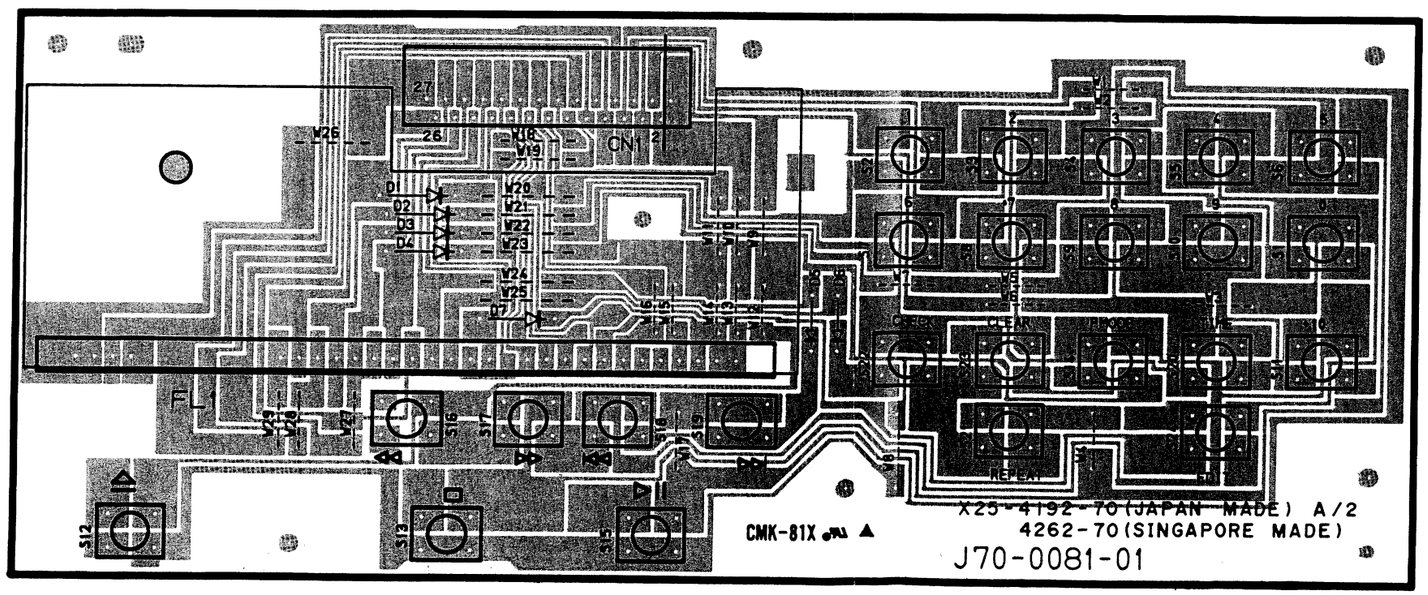


Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Component Side View)

OPERATION UNIT (X25-)

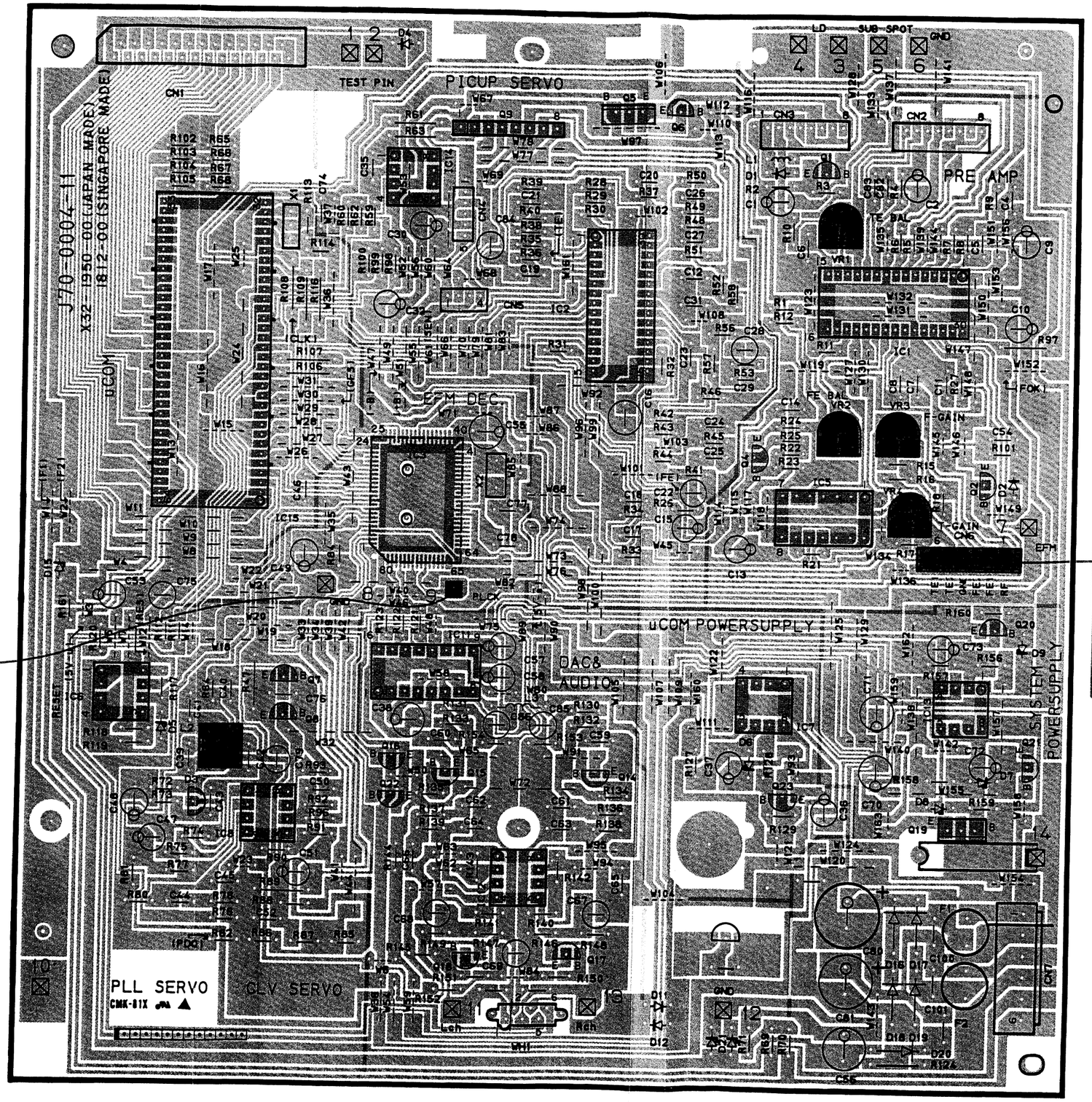




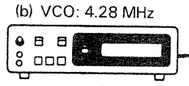
Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Component Side View)

CD PLAYER UNIT (X32-)



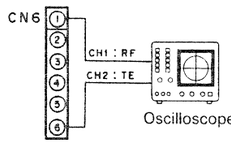
(b) VCO: 4.28 MHz



Frequency Counter

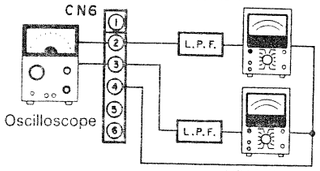
(c) TRACKING ERROR BALANCE:
Symmetry between upper and lower patterns or DC = 0 ± 0.05 V

(d) FOCUS ERROR BALANCE:
Optimum eyepattern



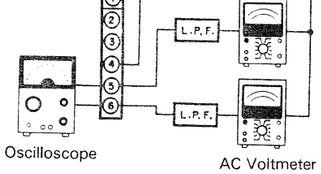
Oscilloscope

(e) FOCUS GAIN:
Two VTVMS should read the same value.



Oscilloscope AC Voltmeter

(e) TRACKING GAIN:
Two VTVMS should read the same value.



Oscilloscope AC Voltmeter

Refer to the schematic diagram for the values of resistors and capacitors.

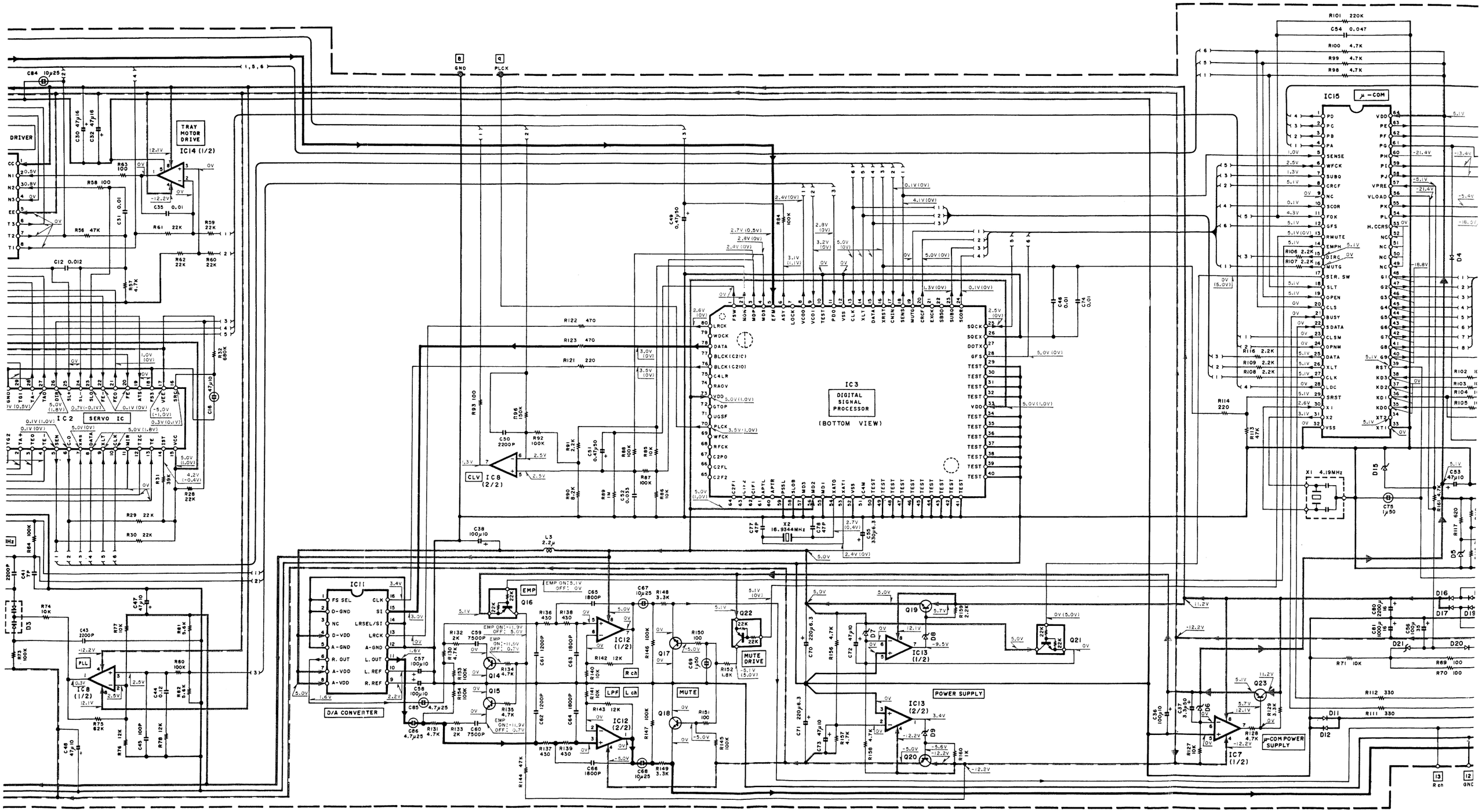
(X92-1370-91) JAPAN MADE
(X92-1400-91) SINGAPORE MADE

(X32-1950-00) JAPAN MADE
(X32-1812-70) SINGAPORE MADE

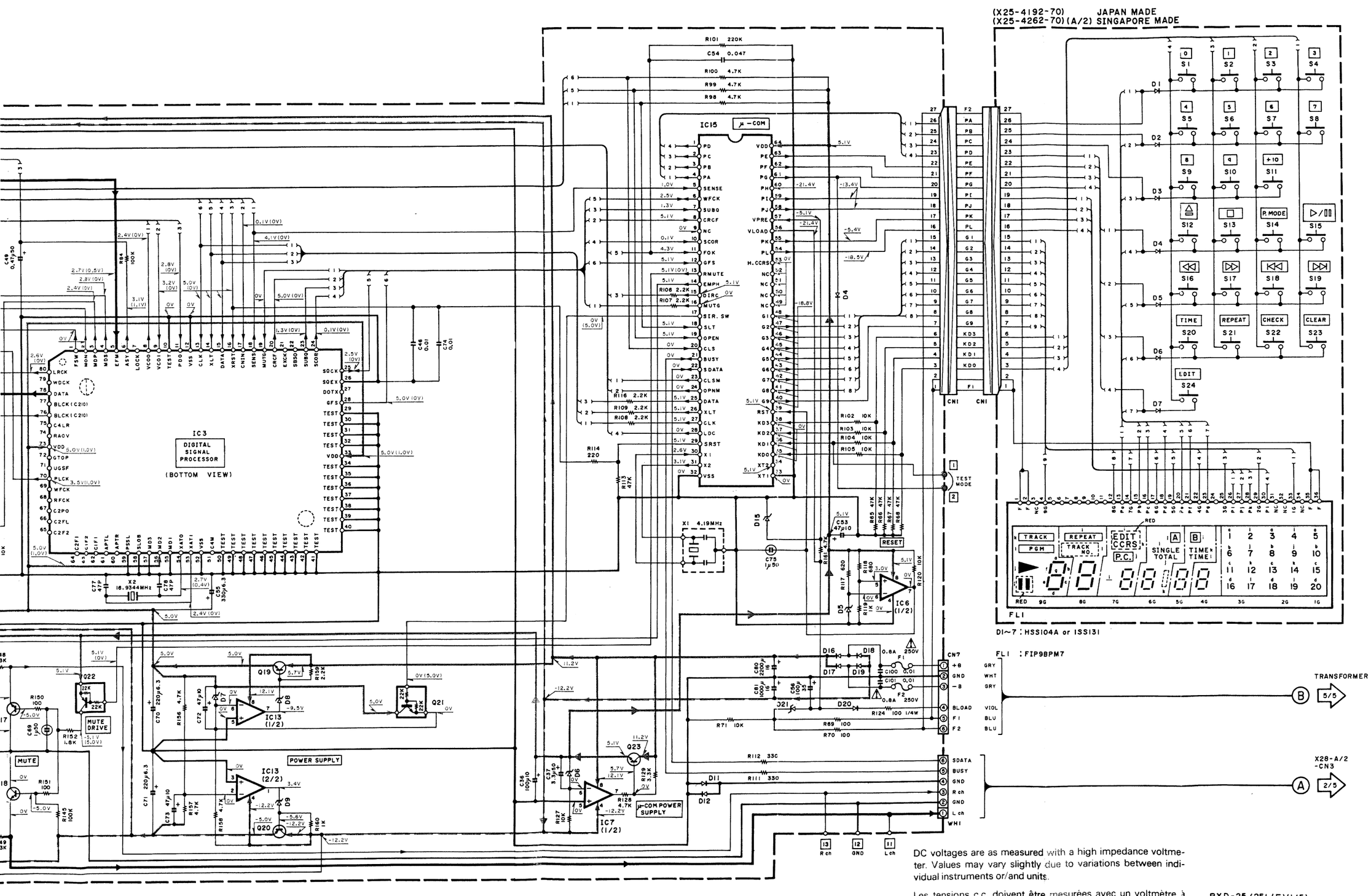
SIGNAL LINE
GND LINE
+B LINE
−B LINE

DC voltages: CD PLAY
(DC voltages): CD STOP

IC1	: CXA1081S
IC2	: CXA1244S
IC3	: CXD1167Q
IC5	: TC4066BP
IC6	: BA10393
IC ,	: NJM4558D
IC11	: μPD6376CX
IC15	: μPD75212ACW-157
Q1,6,7,20	: 2SA1534A
Q2	: 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q4	: 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q5,19	: 2SD1266
Q8,23	: 2SC3940A
Q9	: STA341M
Q16,22	: DTA124ES
Q14,15,17,18	: 2SC2878(B)
Q21	: DTC124ES
D1,2,4,11,12	: HSS104 or 1SS133
D3	: ISV147
D5	: HZS2.7N(B2) or RD2.7ES(B2)
D6~9,15	: HZS5.1S(B2) or RD5.1JS(B2)
D16~20	: S5566B
D21	: HZS6.8N(B2) or RD6.8ES(B2)



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

RXD-25/25L(E)(1/5)

RXD-25/25L

KENWOOD

A MECHA. ASS'Y
(D40-0977-05) JAPAN MADE
(D40-0975-05) SINGAPORE MADE

(X28-224X-XX)(A/2) JAPAN MADE
(X28-226X-XX)(A/2) SINGAPORE MADE

B MECHA. ASS'Y
(D40-0978-05) JAPAN MADE
(D40-0976-05) SINGAPORE MADE

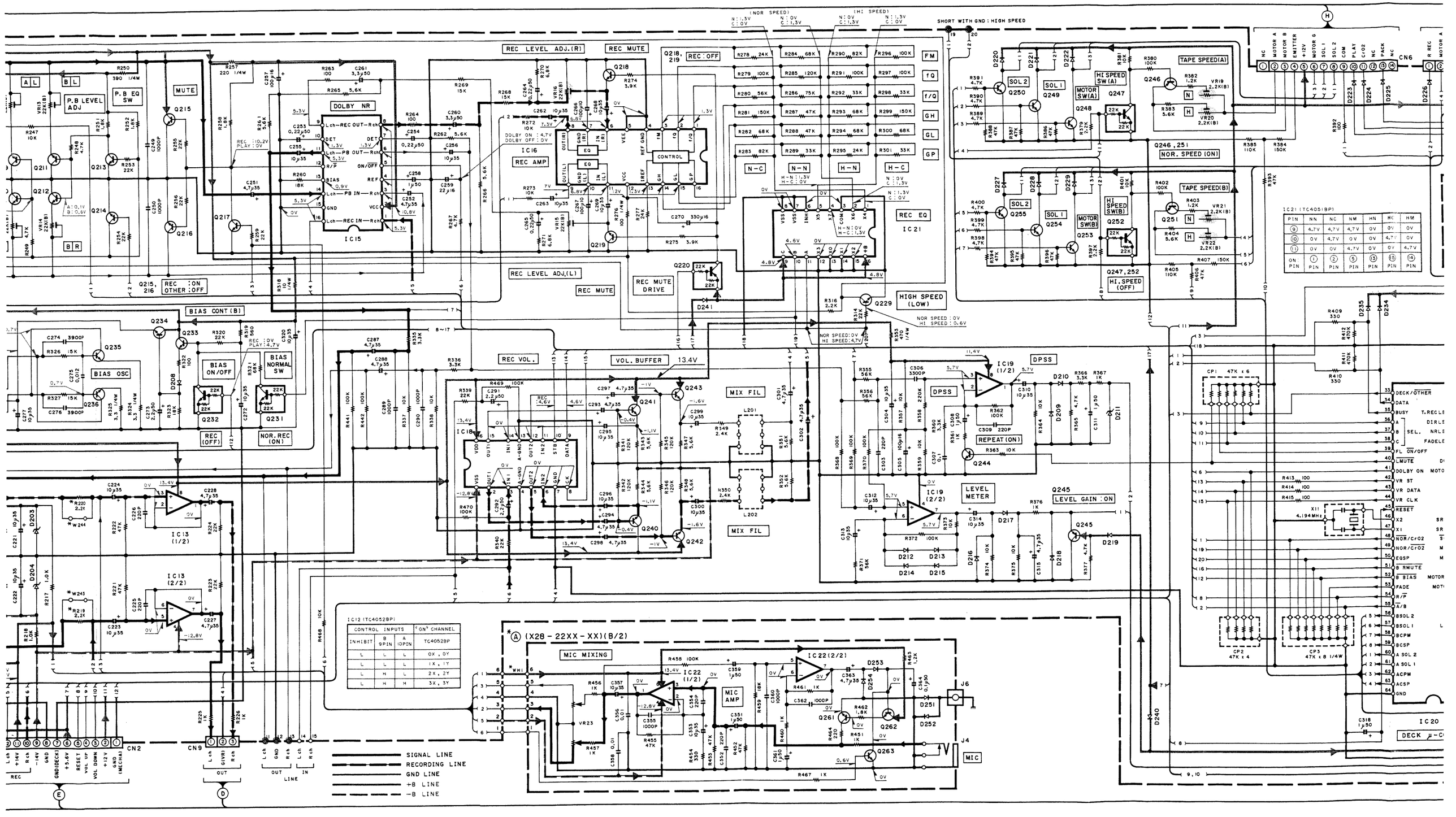
REC LEVEL ADJ.(R)

REC LEVEL ADJ.(L)

IC12 (TC4052BP)

CONTROL INPUTS			ON CHANNEL
INHIBIT	B (9PIN)	A (10PIN)	TC4052BP
L	L	L	0X, 0Y
L	L	H	1X, 1Y
L	H	L	2X, 2Y
L	H	H	3X, 3Y

SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
−B LINE



IC21 (TC4051BP)

PIN	NN	NC	NM	HN	HC	HM
⑨	4.7V	4.7V	4.7V	0V	0V	0V
⑩	0V	4.7V	0V	0V	4.7V	0V
⑪	0V	0V	4.7V	0V	0V	4.7V
ON PIN	① PIN	② PIN	⑤ PIN	⑬ PIN	⑮ PIN	⑭ PIN

IC12 (TC4052BP)

CONTROL INPUTS			"ON" CHANNEL
INHIBIT	B 9PIN	A 10PIN	TC4052BP
L	L	L	0X , 0Y
L	L	L	1X , 1Y
L	H	L	2X , 2Y
L	H	H	3X , 3Y

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

Les tensions c.c. doivent être mesurées ave haute impédance. Les valeurs peuvent différ fait des variations inhérentes aux appareils e de mesure individuels.

IC11,22 : NJM4558D-A
IC12 : TC4052BP
IC13,19 : NJM4565D
IC14 : CXA1115BP
IC15 : HA12136A
IC16 : CXA1198AP
IC17 : μPC1330HA
IC18 : TC9213P
IC20 : μPD75112CW-098
IC21 : TC4051BP

Q218,219
: 2SC2878(B)
Q205,206,231,232,247,252
: DTC124EN
Q207~217,229,233,242~244
261~263
: 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q220 : DTA124EN
Q234 : 2SD863(E,F)
Q235,236
: 2SC945(A)(Q,P)
Q237,238,240,241
: 2SC1845(F,E)
Q239 : 2SA992(F,E)
Q245,246,251
: 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q248~250,253~255
: 2SC3246
D201,202,205,207~210,212~219,
223~226,230~241,251~254
: 1SS133 or HSS104
D203,204
: RD6.8ES(B2) or HZS6.8N(B2)
D206 : RD8.2JS(B2) or HZS8.2S(B2)
D211 : RD5.1JS(B2) or HZS5.1S(B2)
D220~222,227~229
: S5566B

(X28-224X-XX) JAPAN MADE
(X28-226X-XX) SINGAPORE MADE

DESTINATION		UNIT NAME	Ⓐ	WH1	R219	R220	C209, 210	C215, 216
COUNTRY	ABB.							
EUROPE ENGLAND	E T	2-70	NO	NO	W243	W244	1000P	10μ35
PX GENERAL MARKET	Y M	0-21	YES	YES	2.2K	2.2K	560P	0.22μ50
AUSTRALIA	X	0-71	YES	YES	2.2K	2.2K	560P	0.22μ50

IC21 (TC4051BP)

PIN	NN	NC	NM	HN	HC	HM
⑨	4.7V	4.7V	4.7V	0V	0V	0V
⑩	0V	4.7V	0V	0V	4.7V	0V
⑪	0V	0V	4.7V	0V	0V	4.7V
ON PIN	① PIN	② PIN	⑤ PIN	⑬ PIN	⑮ PIN	⑭ PIN

UTION: For continued safety, replace safety critical compo-
nts only with manufacturer's recommended parts (refer to
ts list). ⚠ Indicates safety critical components. To reduce the
of electric shock, leakage-current or resistance measurements
ll be carried out (exposed parts are acceptably insulated from
supply circuit) before the appliance is returned to the custom-

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

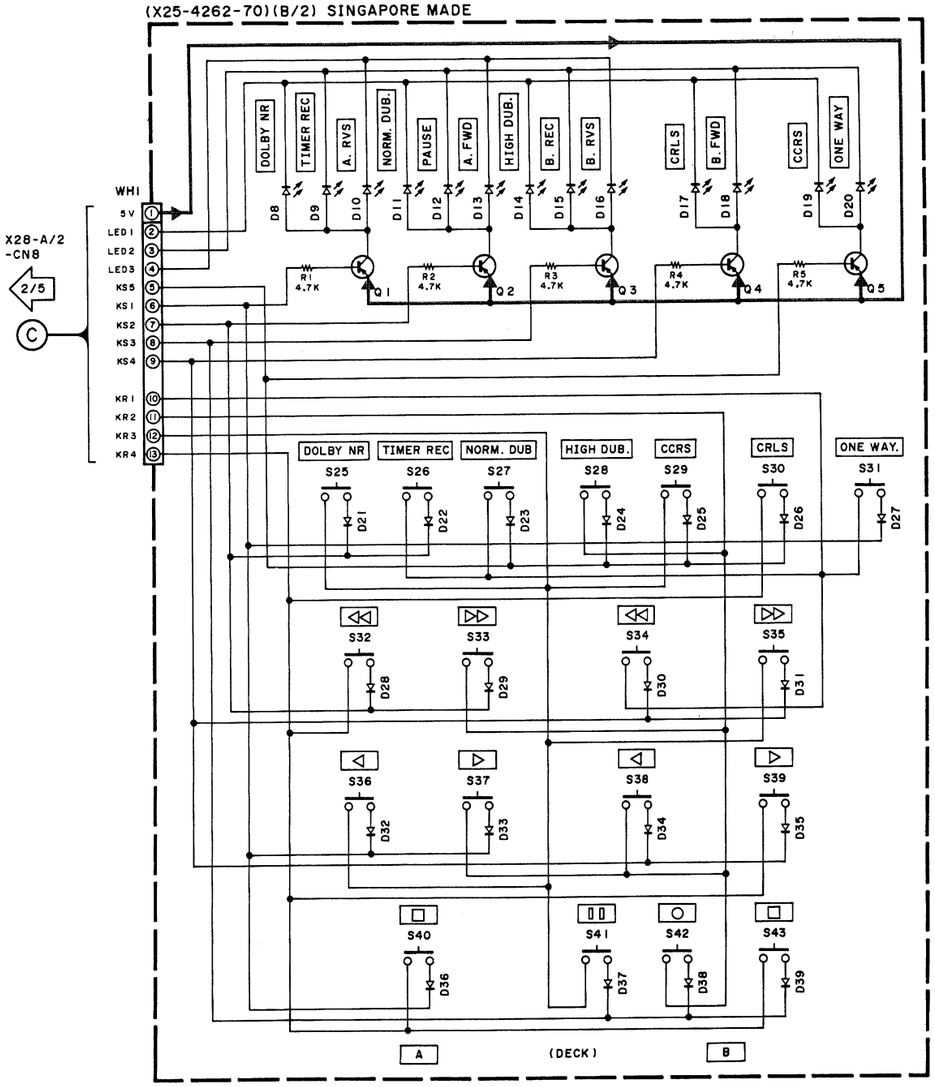
DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

RXD-25/25L(E)(2/5)

RXD-25/25L

KENWOOD

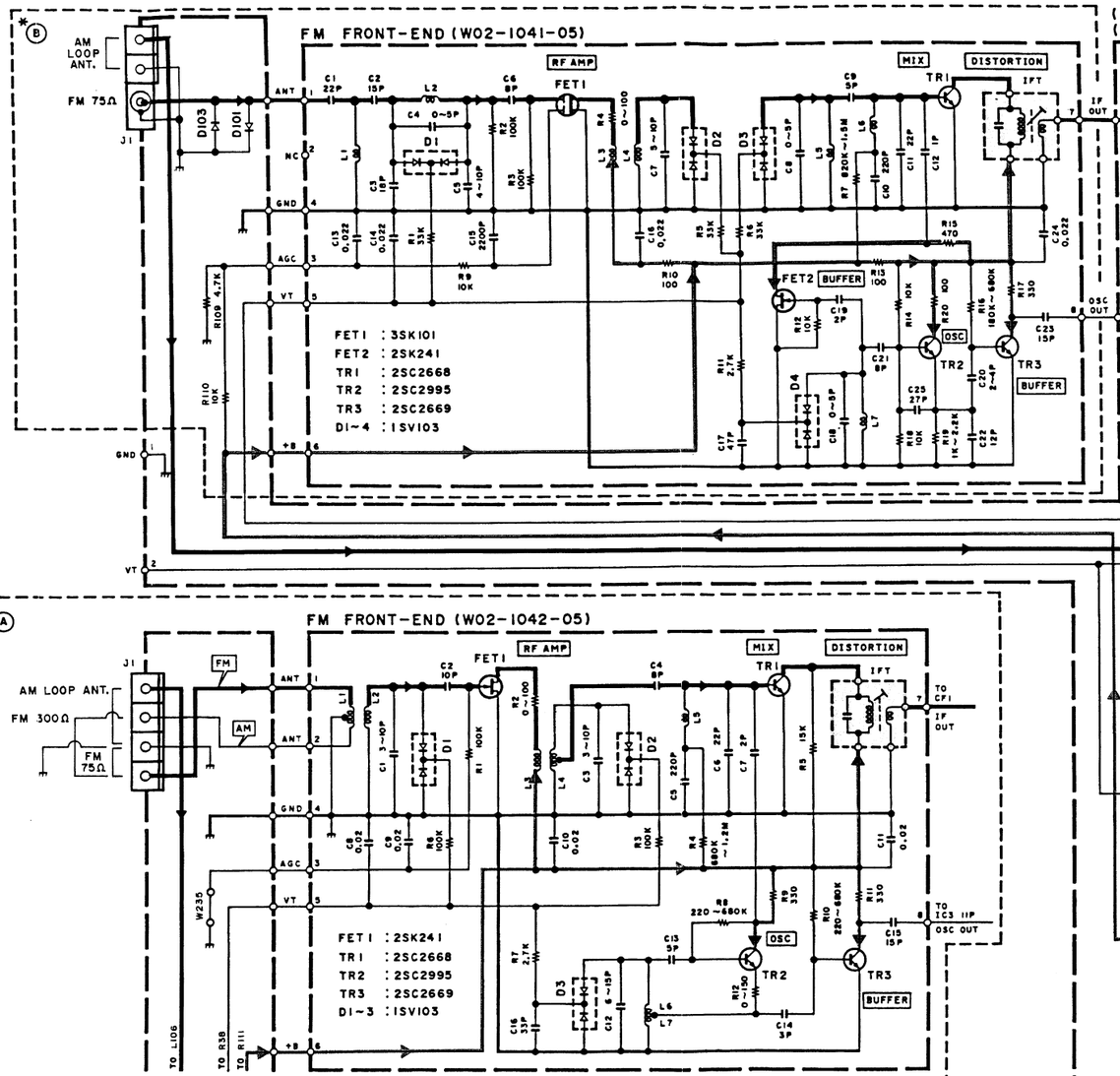
(X25-4192-70)(B/2) JAPAN MADE
(X25-4262-70)(B/2) SINGAPORE MADE



Q1~5 : 2SA954(L,K)
D8~20 : B30-1291-05
D21~39 : HSS104A or ISS131

KEY MATRIX

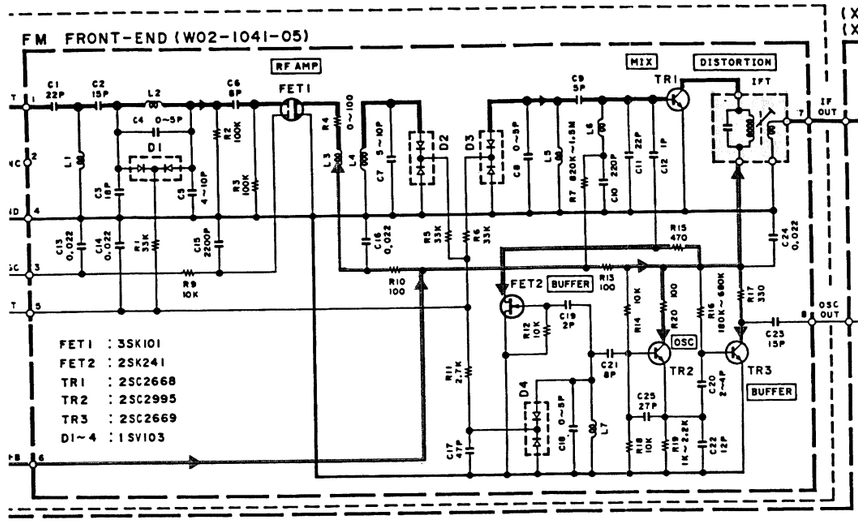
	KS1	KS2	KS3	KS4	KS5
KR1	ONE WAY	T.REC		◁◁	NDUB
KR2	▷	▷▷	○	◁	HDUB
KR3	◁	DOLBY	▯▯	▷▷	CCRS
KR4	□	◁◁	□	▷	CRLS
LED1	DOLBY	NDUB	HDUB	CRLS	CCRS
LED2	T.REC	PAUSE	REC	BFWD	ONE WAY
LED3	ARVS	AFWD	BRVS		

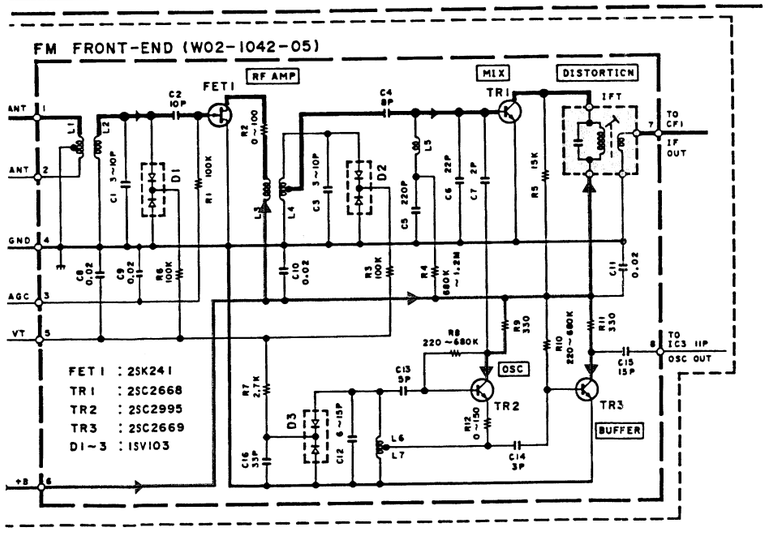


(X28-224X-XX) JAPAN MADE
(X28-226X-XX) SINGAPORE MADE

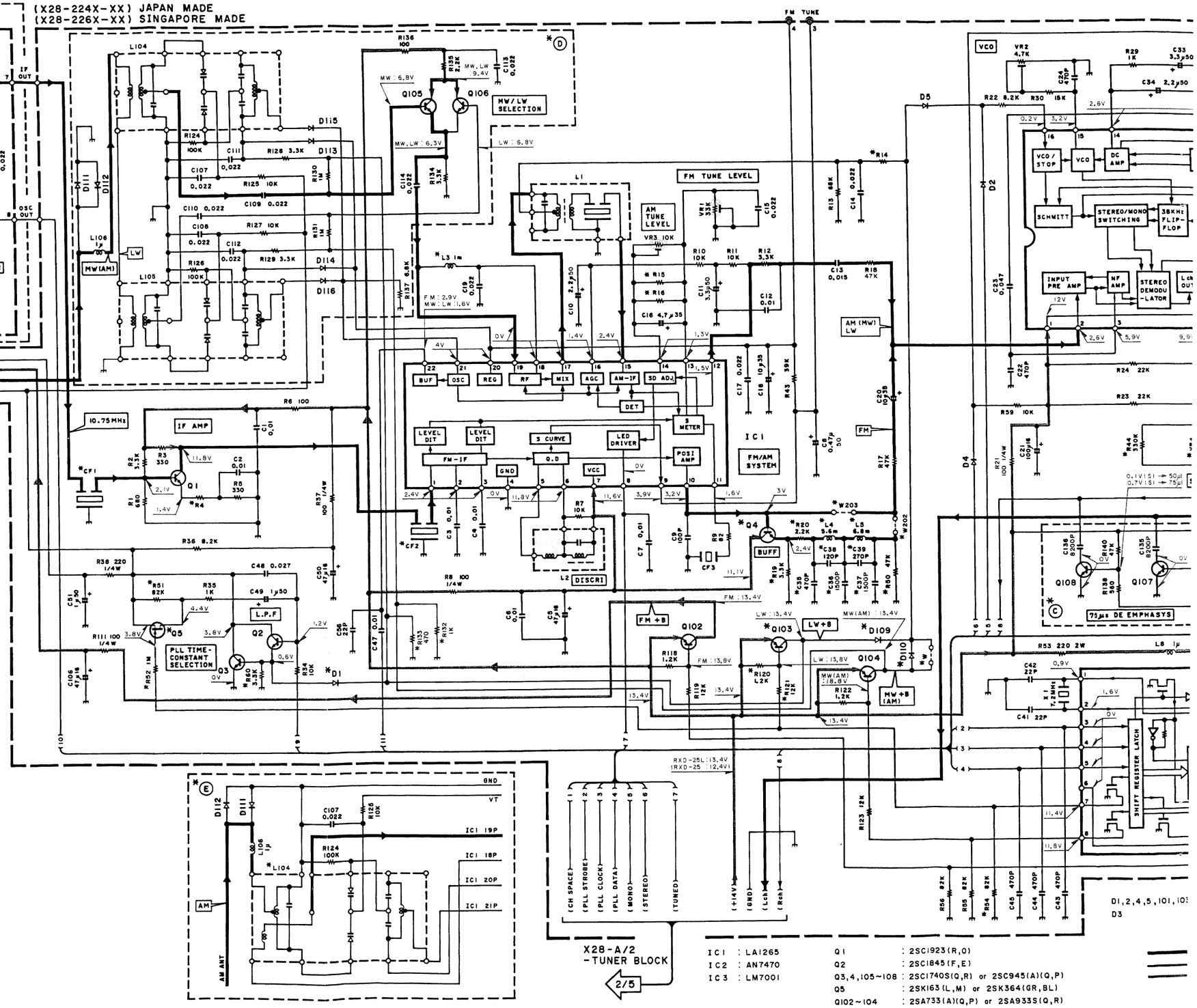
DESTINATION \ Ref No.		Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	R4	R14	R19,20,50,52,54,120,121	R44,60	R51,132,133	C35~39	L3~5	Q4,5,103	D1,109	D110	CF1,2	VR4	S101	W202	W203
(E,T) TYPE	2-70	NO	YES	NO	YES	NO	22	3.3K	YES	NO	YES	YES	YES	YES	YES	YES	L72-0536-05	YES	NO	YES	NO
(X) TYPE	0-71	YES	NO	NO	NO	YES	56	4.7K	NO	YES	W239	NO	NO	NO	NO	W240	L72-0531-05	NO	NO	NO	YES
(M,Y) TYPE	0-21	YES	NO	YES	NO	YES	56	4.7K	NO	YES	W239	NO	NO	NO	NO	W240	L72-0531-05	NO	YES	NO	YES

DESTINATION \ Ref No.			VR3	R15	R16
JAPAN MADE	(E,T) TYPE	2-70	NO	11K	2.2K
	(X) TYPE	0-71	NO	10K	2.7K
	(M,Y) TYPE	0-21	NO	10K	2.7K
SINGAPORE MADE	(E,T) TYPE	2-70	YES	NO	NO
	(X) TYPE	0-71	YES	NO	NO
	(M,Y) TYPE	0-21	YES	NO	NO





(X28-224X-XX) JAPAN MADE
(X28-226X-XX) SINGAPORE MADE



Ⓔ	R4	R14	R19,20,50,52,54,120,121	R44,60	R51,132,133	C35~39	L3~5	Q4,5,103	D1,109	D110	CF1,2	VR4	S101	W202	W203
NO	22	3.3K	YES	NO	YES	YES	YES	YES	YES	W240	L72-0536-05	YES	NO	YES	NO
YES	56	4.7K	NO	YES	W239	NO	NO	NO	NO	W240	L72-0531-05	NO	NO	NO	YES
YES	56	4.7K	NO	YES	W239	NO	NO	NO	NO	W240	L72-0531-05	NO	YES	NO	YES

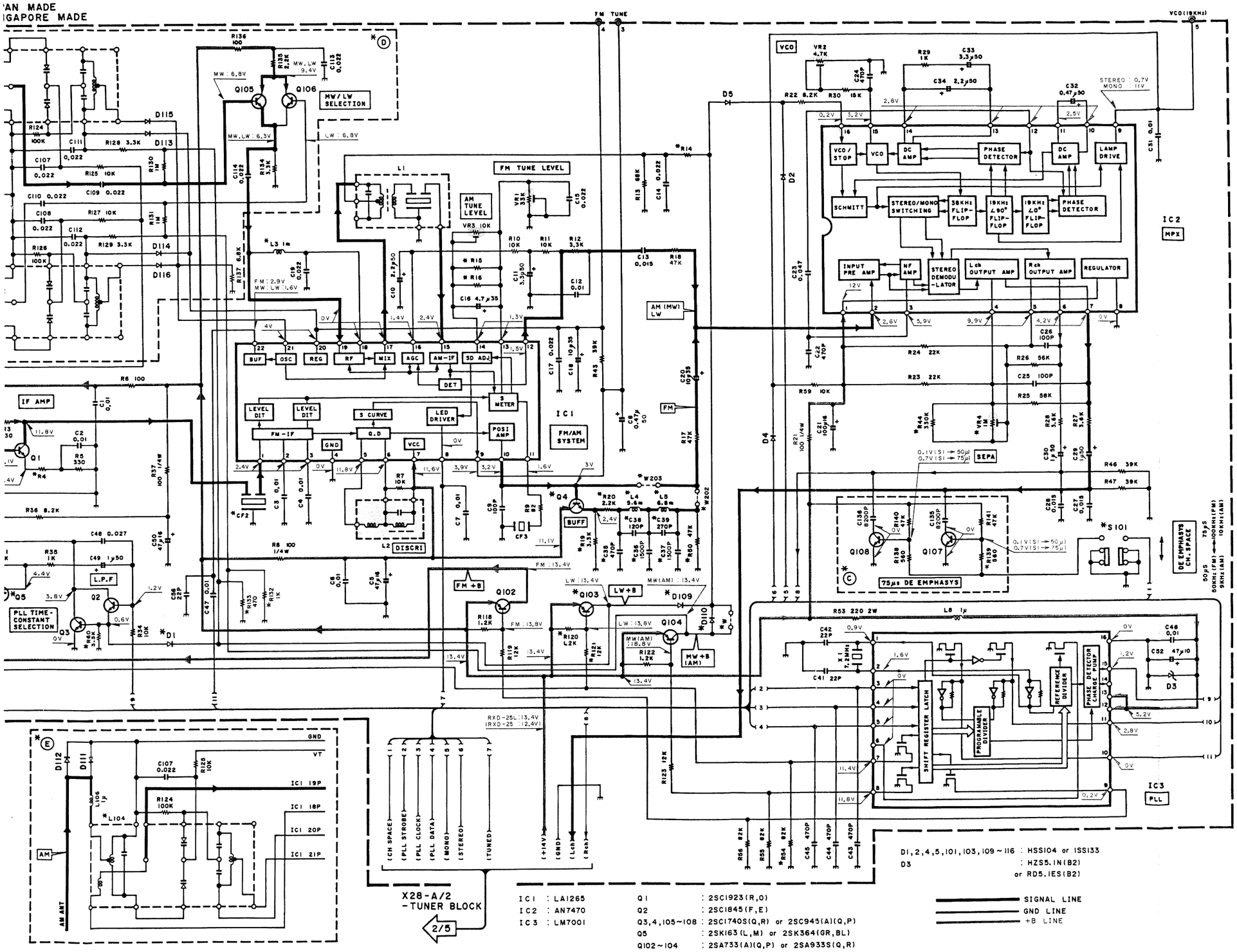
IC1	: LA1265
IC2	: AN7470
IC3	: LM7001
Q1	: 2SC1923(R,O)
Q2	: 2SC1845(F,E)
Q3,4,105~108	: 2SC1740S(Q,R) or 2SC945(A)(Q,P)
Q5	: 2SK163(L,M) or 2SK364(GR,BL)
Q102~104	: 2SA733(A)(Q,P) or 2SA933S(Q,R)

D1,2,4,5,101,103
D3

X28-A/2 -TUNER BLOCK

2/5

'AN MADE
IGAPORE MADE



IC1 : LA1265
IC2 : AN7470
IC3 : LM7001

Q1 : 2SC1923(R,O)
Q2 : 2SC1845(F,E)
Q3,4,105~108 : 2SC1740S(Q,R) or 2SC945(A)(Q,P)
Q5 : 2SK163(L,M) or 2SK364(GR,BL)
Q102~104 : 2SA733(A)(Q,P) or 2SA933S(Q,R)

D1,2,4,5,101,103,109~116 : HSS104 or 1SS133
D3 : HZS5.1N(B2) or RD5.1ES(B2)

SIGNAL LINE
GND LINE
+B LINE

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

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RXD-25/25L(E)(3/5)

RXD-25/25L
KENWOOD

BK BL BM BN BO BP BQ BR BS BT

DISPLAY UNIT

(X14-311X-XX) JAPAN MADE (X14-295X-XX) SINGAPORE MADE

X28-A/2 -CN1 2/5 F

FL1 FL2

REMOTE SENSOR (INSIDE FRONT GLASS OF TUNER)

A1

RECEIVER μ-COM IC1

CP1 470P x4 CP2 470P x4

R2 100K 1/4W R3 100K R4 100K R5 100K R6 100K R7 100K R8 10K R9 10K R25 100K R28 330 R27 330 R26 100K R14 100K *R15 10K *R16 100K *R17 10K *R18 100K R19 100K R82 100K R22 100K

R10 1K D3 R11 100K R12 100K

PLL IC

R55 43 1/4W R56 43 1/4W R31 100K

C18 10μ35 C17 10μ35

D1

X1 4.194304 MHz C5 33P C6 33P

C1 0.01 C2 100μ10

C19 470P C20 470P C21 470P C22 470P

R1 100K R24 68K

D2

R43 330 D18 CD
R42 330 D17 PHONO
R41 330 D16 TUNER
R40 330 D15 TAPE B
R23 330 D14 TAPE A

Q1 R30 1K RESET D7 R29 100K C3 1μ50

IC4 FL DRIVE

IC3 4→10 (3→7) DECORDER

IC5 DISPLAY FILTER

R80 39K R81 10K R78 100K

R74 100K R77 100K R76 100K R75 100K

Q6 Q5 Q4

C13 0.01 C12 3.3μ50 C11 1000P C9 0.01 C10 3.3μ50 L2 100μ

R65 1K R64 1K R63 1K

EQ EFEECT D19

R61 1K R62 1K R53 1K D24 R46 330 R39 330 R54 47K

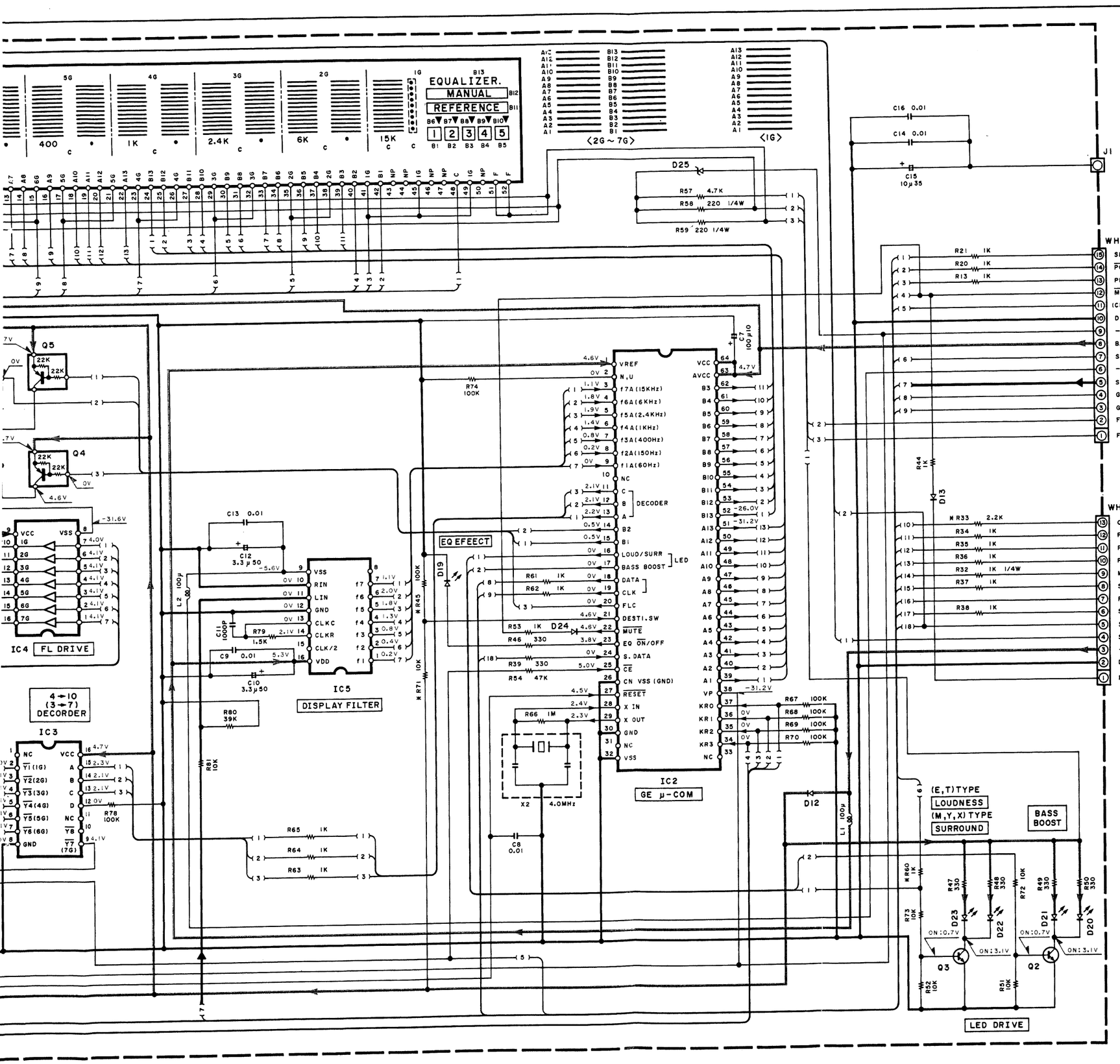
R66 1M X2 4.0MHz C8 0.01

* R45 100K * R71 10K

D5 D4 D6 D8 D9 D10 D11 D29 D28 D27 D26

1 S1	6 S6	5 S5	PRO1 S13	+10 S11	TAPE B S26	TUNER S27	REF/MANU S32	MEMORY S34	FLAT S33	EQ. EFFECT S23
2 S2	7 S7	0 S10	PRO2 S14	ADJIST S12	BAND S17	PHONO S28	1 S35	2 S36	3 S37	4 S38
3 S3	8 S8	UP S19	EXE S15	ENTER S20	TAPE A S25	CD S29	5 S39	∧ S43	∨ S42	BASS BOOST S30
4 S4	9 S9	DOWN S18	SLEEP S16	AUTO S21	MUTING S24	POWER S22	LOUDNESS or SURROUND S31	< S40	> S41	

TUNER AMP GE AMP EQ. CONTROL



DESTINATION \ Ref No.		R15,60,71	R16,45	R17,33	R18
(E,T) TYPE	2-70	NO	YES	NO	YES
(X) TYPE	0-71	YES	NO	NO	YES
(M,Y) TYPE	0-21	YES	NO	YES	NO

D1,3~13,24, 26~29 : HSS104 or ISS133
D2,25 : RD8.2ES(B2) or HZ8.2N(B2)
D14~23 : B30-1291-05

Q1~3 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q4~6 : UN4112 or DTA124ES

IC1 : μPD75208CW-A97
IC2 : M50940-314SP
IC3 : TC74HC42AP
IC4 : μPA80C
IC5 : XR-1091DCP

FL1 : FIP10HM6
FL2 : FIP78W11Y

A1 : W02-0975-05 or W02-1043-05

RXD-25/25L(E)(4/5)

DTA124EN

DTC124
2SA153
2SA733
2SA954
2SA992
2SC184
2SC192
2SC200
2SC287
2SC324
2SC394
2SC945
2SD863

2SD1266

DTA124ES
DTC124ES
2SA933S
2SC1740S

2SC4

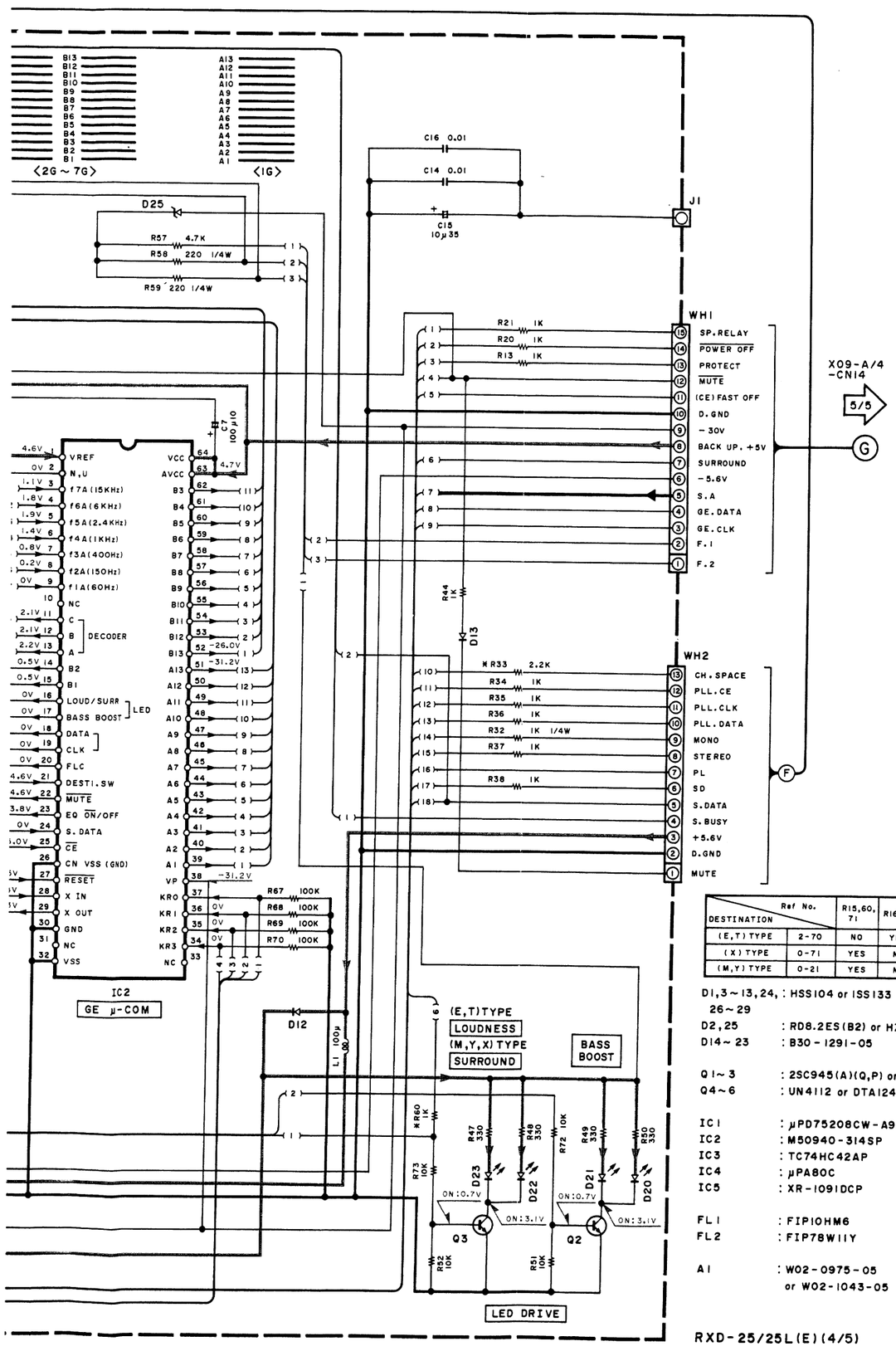
2SB1492
2SD2254

DC voltages are as measured with a high impedar ter. Values may vary slightly due to variations be vidual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un haute impédance. Les valeurs peuvent différer lég fait des variations inhérentes aux appareils et aux de mesure individuels.

Die angegebenen Gleichspannungswerte wurden hochohmigen Spannungsmesser gemessen. Dab ken die Meßwerte aufgrund von Unterschieden zw zelnen Instrumenten oder Geräten u. U. geringfügig

CAUTION: For continued safety, replace safety nents only with manufacturer's recommended parts list). ⚠ Indicates safety critical component risk of electric shock, leakage-current or resistance shall be carried out (exposed parts are acceptabl the supply circuit) before the appliance is returnec er.



DESTINATION \ Ref No.	R15,60,71	R16,45	R17,33	R18
(E,T) TYPE	2-70	NO	YES	NO	YES
(X) TYPE	0-71	YES	NO	NO	YES
(M,Y) TYPE	0-21	YES	NO	YES	NO

D1,3~13,24, 26~29 : HSS104 or ISS133
D2,25 : RD8.2ES(B2) or HZ8.2N(B2)
D14~23 : B30-1291-05

Q1~3 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q4~6 : UN4112 or DTA124ES

IC1 : μPD75208CW-A97
IC2 : M50940-314SP
IC3 : TC74HC42AP
IC4 : μPA80C
IC5 : XR-1091DCP

FL1 : FIP10HM6
FL2 : FIP78W11Y

A1 : W02-0975-05 or W02-1043-05

RXD-25/25L(E)(4/5)

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

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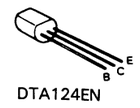
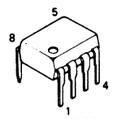
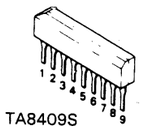
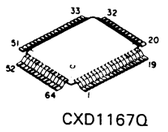
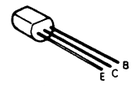
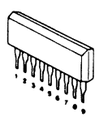

DTA124EN

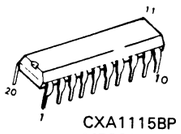

NJM4558D
NJM4558D-A
NJM4565D

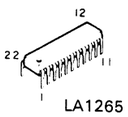

TA8409S


CXD1167Q


DTC124EN
2SA1534A
2SA733(A)
2SA954
2SA992
2SC1845
2SC1923
2SC2003
2SC2878
2SC3246
2SC3940A
2SC945(A)
2SD863


UPC1330HA


CXA1115BP
M5229P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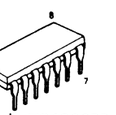
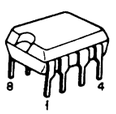
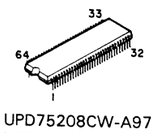
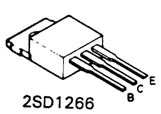
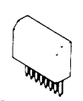
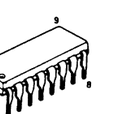

TC4066BP
UPCD4574C

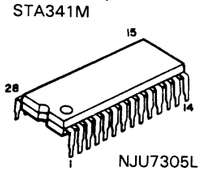

BA10393


UPD75208CW-A97
UPD75212ACW-157


2SD1266


STA341M


CXA1198AP
XR-1091DCP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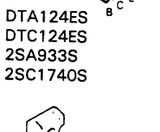
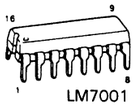
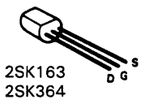
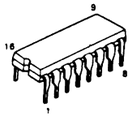

DTA124ES
DTC124ES
2SA933S
2SC1740S


LM7001


2SK163
2SK364

2SC4137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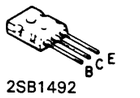
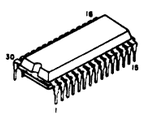
TC4052BP
TC74HC42AP
TC9213P
TC9215P
UPA80C
UPD6376CX


2SB1492
2SD2254


CXA1081S
CXA1244S

RXD-25/25L
KENWOOD

AUDIO UNIT (X09-336X-XX)(A/4) JAPAN MADE
(X09-323X-XX)(A/4) SINGAPORE MADE

(X09-336X-XX) JAPAN MADE
(X09-323X-XX) SINGAPORE MADE

DESTINATION		UNIT NAME	Ⓐ	Ⓑ	Ⓒ	CN10	C/4	D/4	R73, 74	R175	C25,26, 31,32	C67 ~70	C105, 106	Q11,12	Q13,14	DIO	D40	S1	S2	F1	F4	F5	J3	W142, 143	W183
COUNTRY	ABB.																								
EUROPE ENGLAND	E T	2-70	YES	NO	NO	NO	NO	NO	10K	YES	YES	NO	4700μ50	2SD2340	2SB1531	RD13ES(B2) or HZS13N(B2)	W197	NO	NO	T800mA	YES	NO	NO	YES	NO
AUSTRALIA	X	0-71	YES	NO	NO	NO	NO	YES	12K	NO	NO	YES	3300μ42	2SD2254	2SB1492	RD13ES(B2) or HZS13N(B2)	W197	NO	NO	T1.6A	NO	YES	YES	NO	NO
GENERAL MARKET	M	0-21	NO	NO	YES	YES	YES	YES	12K	NO	NO	YES	3300μ42	2SD2254	2SB1492	RD6.8ES(B2) or HZS6.8N(B2)	YES	YES	NO	NO	NO	YES	NO	NO	YES
PX	Y	2-91	NO	YES	NO	NO	YES	YES	12K	NO	NO	YES	3300μ42	2SD2254	2SB1492	RD6.8ES(B2) or HZS6.8N(B2)	YES	NO	YES	NO	NO	YES	YES	NO	YES

IC1,2 : M5229P
IC3 : NJU7305L
IC4 : TA8409S
IC5 : TC9215P
IC6 : μPC4574C

Q1~4,23,28,35,36,42,44,47 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q5~8,17,18 : 2SC1845(F,E)
Q9,10 : 2SA992(F,E)
Q11,12 : *
Q13,14 : *
Q15,16 : 2SC4137(V,W)
Q19~22,25 : 2SC2878(B)
Q24,26,32~34,43,45,46 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q27 : 2SC2003(L,K)
Q31,37~39 : 2SD1266(Q,P)
Q40,41 : 2SA954(L,K)

D1,2,19~21,32~39 : ISS133 or HSS104
D3,4,24,30 : ISS131 or HSS104A
D5 : RBV-402LFA
D6~9,14,15,23,31 : S5566B
D10 : *
D11 : RD13ES(B2) or HZS13N(B2)
D12,13 : RD6.2ES(B2) or HZS6.2N(B2)
D16 : RD16ES(B2) or HZS16N(B2)
D17 : RD18ES(B) or HZS18N(B)
D18 : RD4.7ES(B) or HZS4.7N(B)
D22,26,40 : RD5.1JS(B2) or HZS5.1S(B2)
D25,27 : RD6.8ES(B2) or HZS6.8N(B2)
D28,29 : RD3.9ES(B2) or HZS3.9N(B2)

IC4 (TA8409S) (TRUTH TABLE)

INPUT		OUTPUT		MODE
①	⑨	③	⑦	PIN No of IC4
IN1	IN2	OUT1	OUT2	MODE of MOTOR
0	0	∞	∞	STOP
0	1	L	H	CW
1	0	H	L	CCW
1	1	L	L	BRAKE

∞:HIGH INPEDANCE INPUT:"H" ACTIVE

*(X09-)(D/4)

X28-A/2 -CN9 → 2/5 → D
X28-A/2 -CN2 → 2/5 → E
X32 -CN7 → 1/5 → B
X14 -WH1 → 4/5 → G

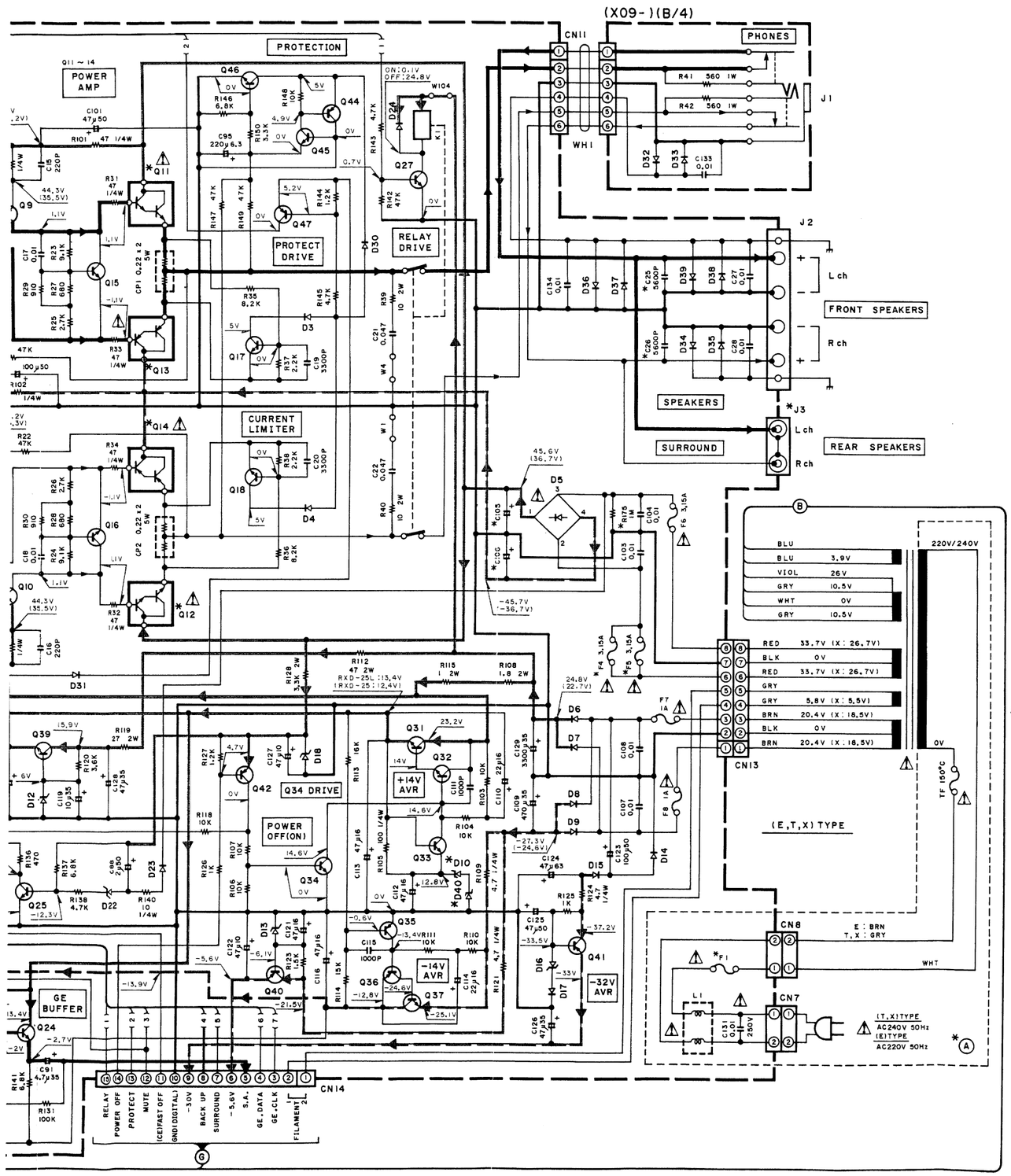
CN16: L OUT, GND, L IN, +14V, R IN, -14V, R OUT, GND, MUTE, SURROUND

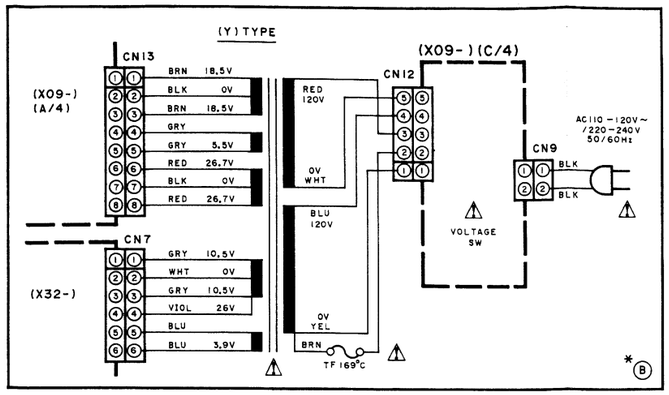
MUTE DRIVE (Q28) 4.1V
MUTE (Q21, Q22)
SURR.ON: 4.1V
IC6 (4/4), IC6 (1/4), IC6 (3/4), IC6 (2/4)
SURROUND
IC5 (SUR ON/OFF)
SURROUND SW

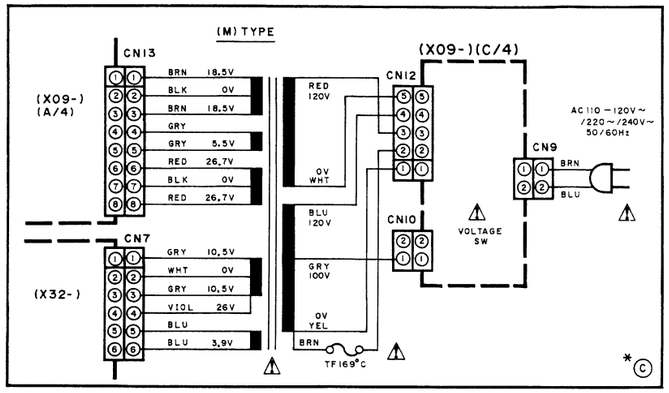
VOL. MOTOR DRIVE
IC4 (TA8409S)
PRE AMP (Q1, Q3)
CASCODE (Q9, Q7, Q5)
2nd (Q8, Q6)
PRE AMP (Q2, Q4)
CASCODE (Q10)
VOLUME CONTROL (VR1)
BALANCE (VR2)
12V AVR (Q38)
POWER ON/OFF (Q43, Q39)
RESET (Q26, Q25)
MUTE (Q19, Q20)
MUTE DRIVE (Q23)
GE BUFFER (Q24)
POWER AMP (Q11~14)

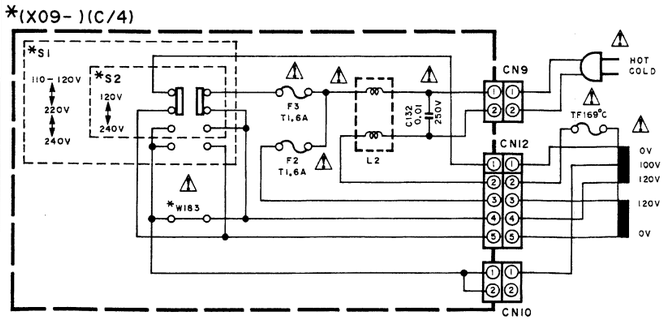
CN15: L OUT, GND, L IN, +14V, R IN, -14V, R OUT, GND, MUTE, SURROUND
WH2: Rch, GND, Lch (MAIN IN)
WH3: D.GND, REC(L), +14V, REC(R), -14V, GND, GND(DECK), +5.6V, RESET, VOL UP, VOL DOWN, +12V, GND(MECHA)

GM AMP(R) IC2
GE LEVEL IC3
RESISTOR NETWORK ANALOG SW
CONTROL
GE AMP(L) IC1









SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
-B LINE

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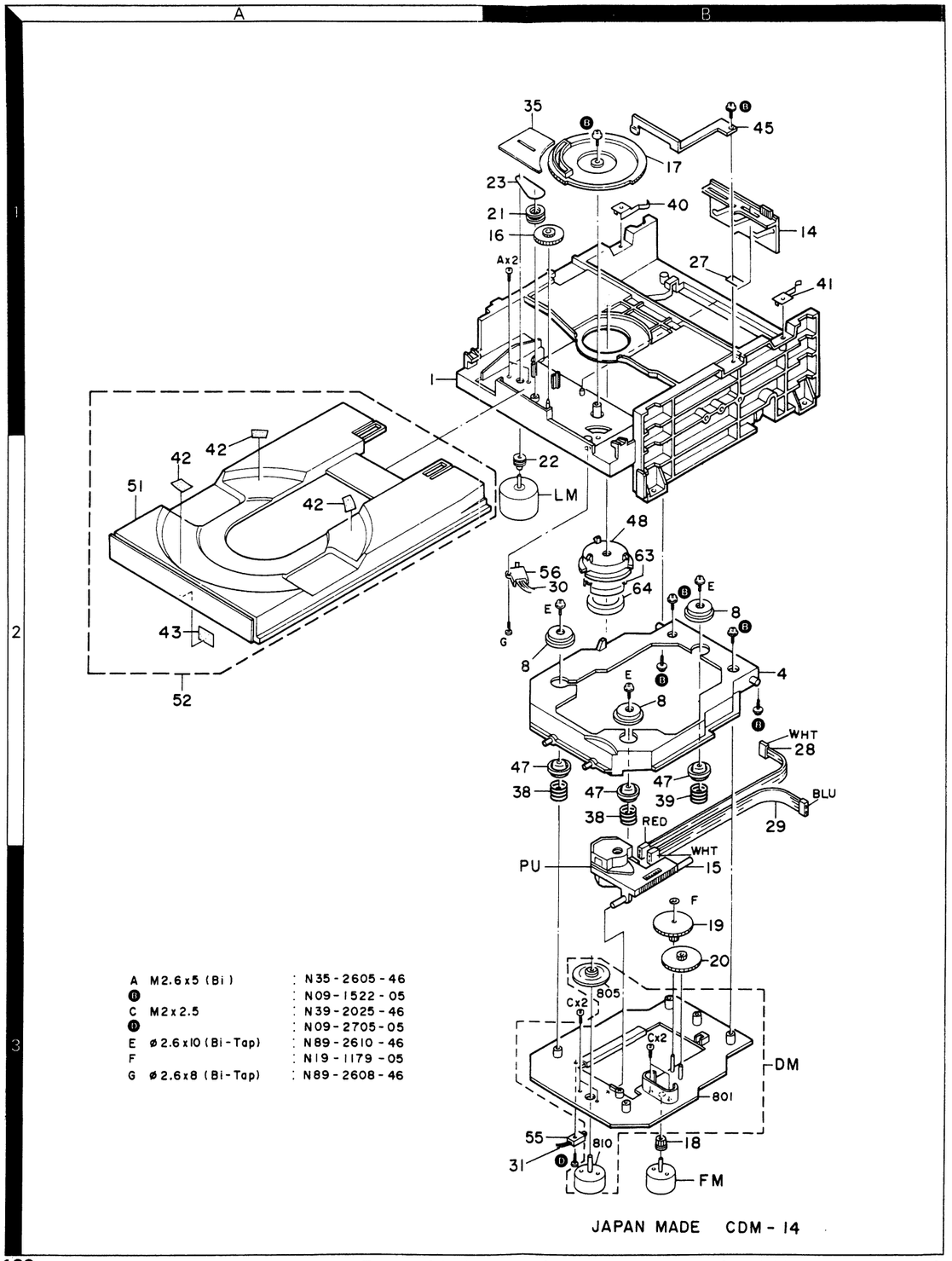
RXD-25/25L
KENWOOD

EXPLODED VIEW (MECHANISM) : JAPAN MADE



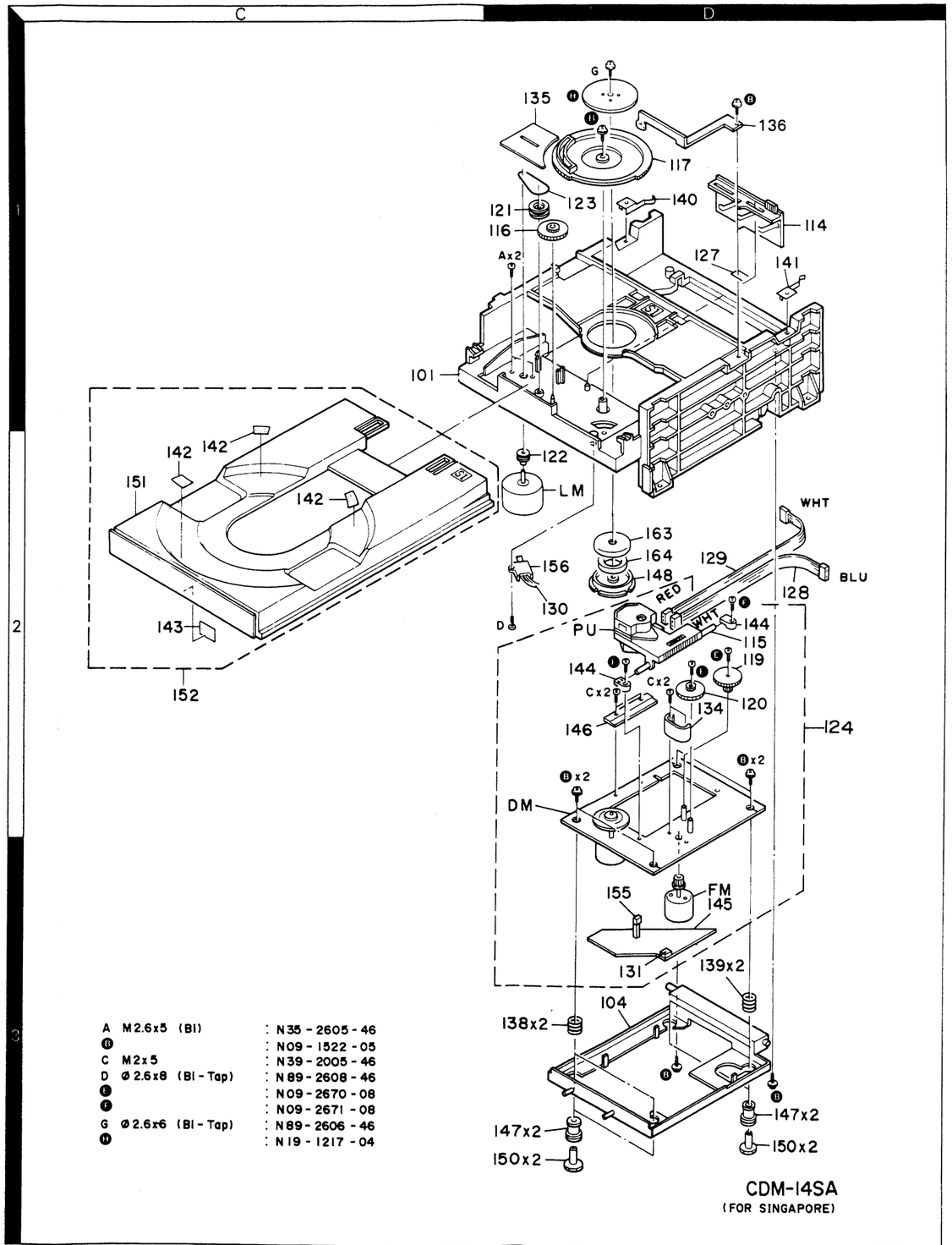
A	M2.6x5 (Bi)	:	N35-2605-46
B		:	N09-1522-05
C	M2x2.5	:	N39-2025-46
D		:	N09-2705-05
E	ø2.6x10 (Bi-Tap)	:	N89-2610-46
F		:	N19-1179-05
G	ø2.6x8 (Bi-Tap)	:	N89-2608-46

JAPAN MADE CDM-14

Parts with the exploded numbers larger than 700 are not supplied.

RXD-25/25L

EXPLODED VIEW (MECHANISM) : SINGAPORE MADE



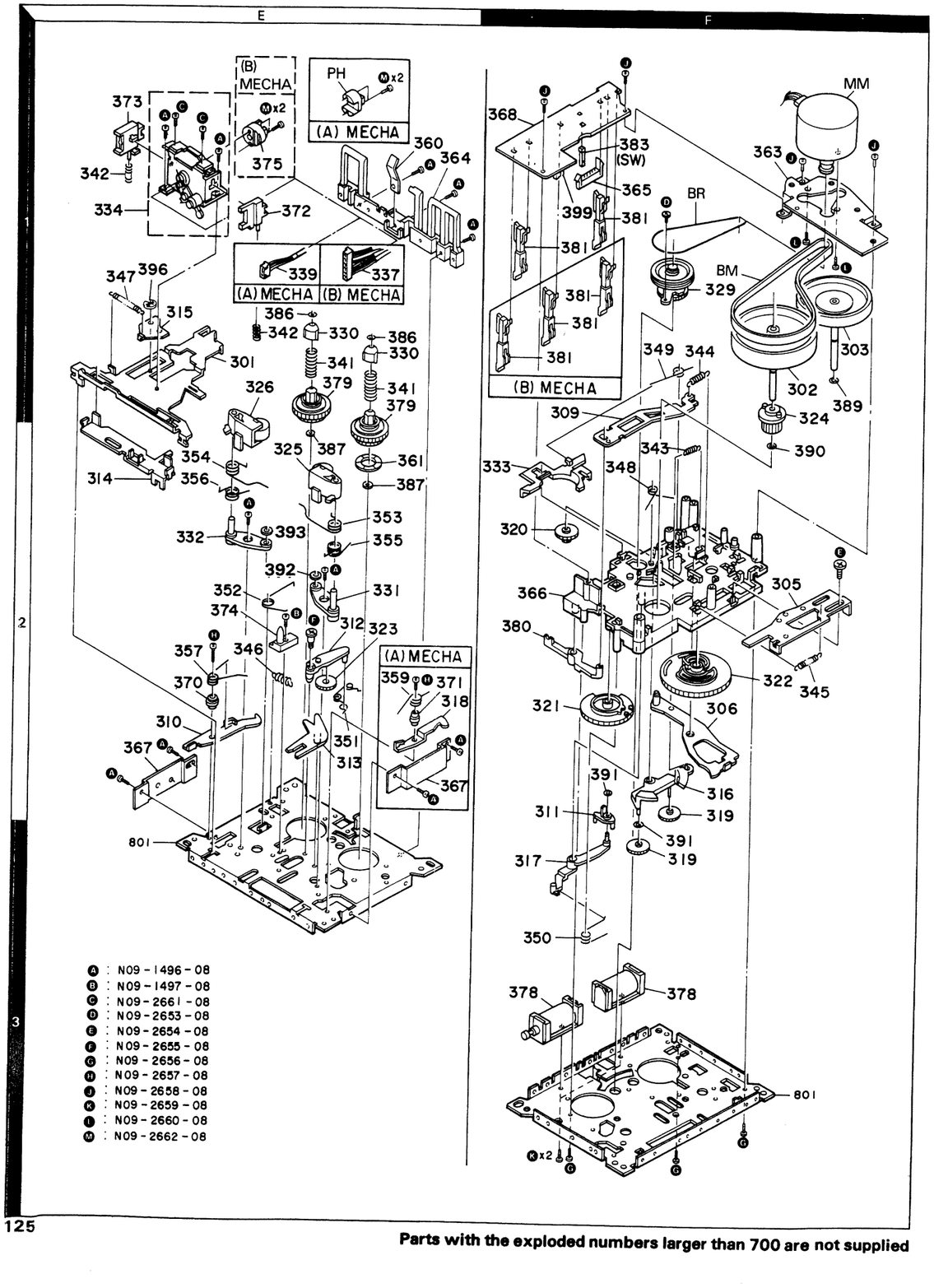
A	M2.6x5 (BI)	:	N35-2605-46
B		:	N09-1522-05
C	M2x5	:	N39-2005-46
D	ø2.6x8 (BI-Tap)	:	N89-2608-46
E		:	N09-2670-08
F		:	N09-2671-08
G	ø2.6x6 (BI-Tap)	:	N89-2606-46
M		:	N19-1217-04

CDM-14SA
(FOR SINGAPORE)

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW

<DECK>



- A : N09-1496-08
- B : N09-1497-08
- C : N09-2661-08
- D : N09-2653-08
- E : N09-2654-08
- F : N09-2655-08
- G : N09-2656-08
- H : N09-2657-08
- J : N09-2658-08
- K : N09-2659-08
- L : N09-2660-08
- M : N09-2662-08

Parts with the exploded numbers larger than 700 are not supplied

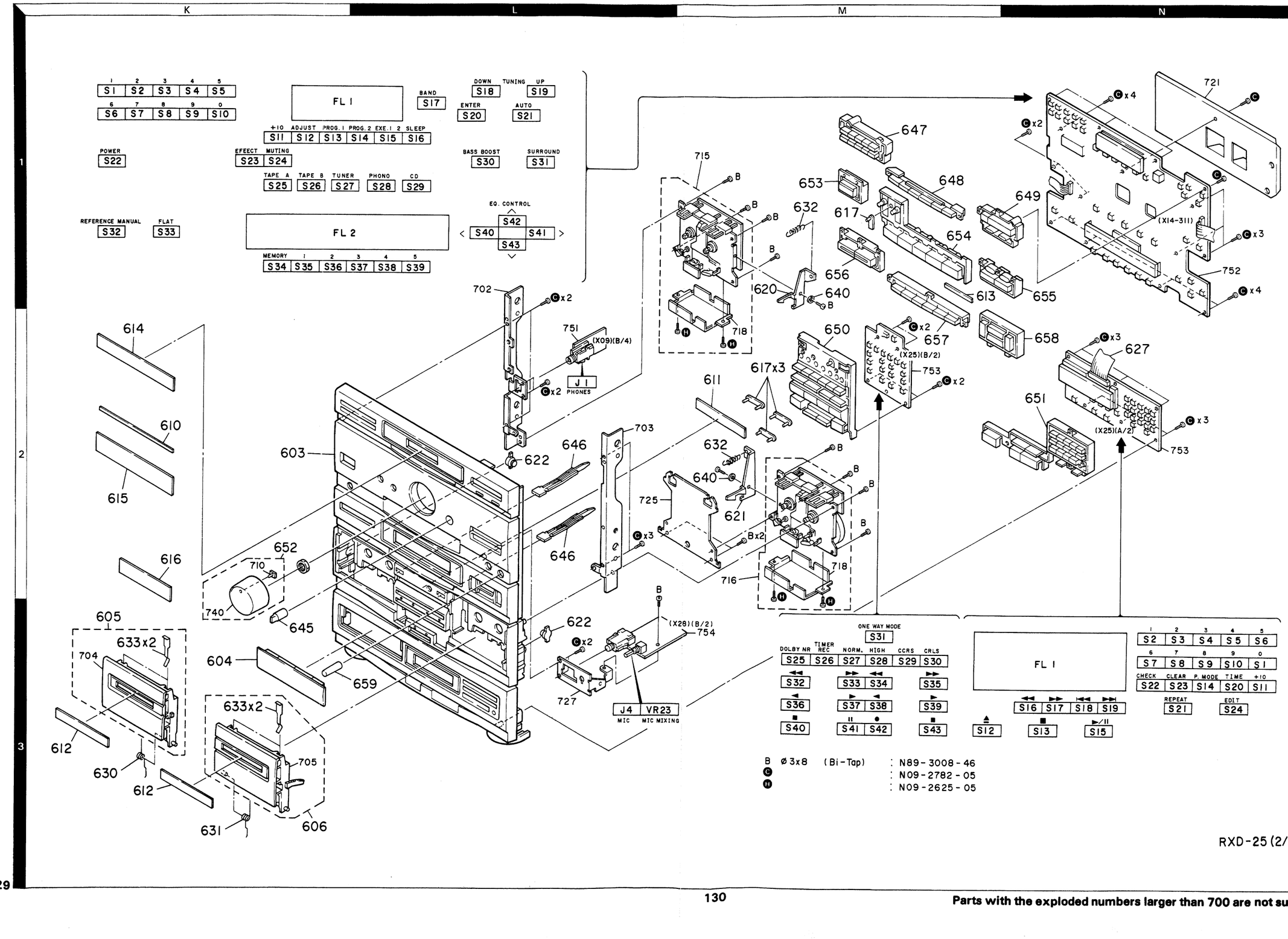
EXPLODED VIEW (UNIT)

A	ø3x8	(Bi-Tap) BLK	: N89-3008-45
B	ø3x8	(Bi-Tap)	: N89-3008-46
C			: N09-2782-05
D	ø4x8	(Bi-Tap)	: N89-4008-46
E			: N09-1236-05
F	M3x6		: N09-2769-05

Parts with the exploded numbers larger than 700 are not supplied.

RXD-25/25L RXD-25/25L

EXPLODED VIEW (UNIT)



Parts with the exploded numbers larger than 700 are not supplied.

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

No. 1

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
RXD-25/25L						
601	1K	*	A01-1891-01	METALLIC CABINET		
602	2K	*	A08-0106-08	BATTERY COVER	YMX	
602	2K		A09-0091-08	BATTERY COVER	ET	
603	2G,2K	*	A20-6133-01	PANEL	ET	
603	2G,2K	*	A20-6134-01	PANEL	YMX	
604	3G	*	A29-0177-13	PANEL(CD)		
605	3G	*	A53-1263-03	CASSETTE HOLDER ASSY(A)		
606	3G	*	A53-1265-03	CASSETTE HOLDER ASSY(B)		
607	2K	*	A70-0391-05	REMOTE CONTROLLER ASSY(RC-25)	ET	
607	2K	*	A70-0392-05	REMOTE CONTROLLER ASSY(RC-252)	YMX	
610	2G	*	B03-2671-03	DRESSING PLATE(INPUT SELECTOR)		
611	2I	*	B03-2672-04	DRESSING PLATE(DECK)		
612	3G	*	B03-2673-04	DRESSING PLATE(CASSETTE HOLDER		
613	1I	*	B03-2674-04	DRESSING PLATE(BASS BOOST)		
614	2G	*	B10-1821-03	FRONT GLASS(TUNER)		
615	2G	*	B10-1822-03	FRONT GLASS(GE)		
616	2G	*	B10-1823-04	FRONT GLASS(CD)		
617	2I	*	B12-0149-04	INDICATOR		
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-23	WARRANTY CARD	X	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0268-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0269-00	INSTRUCTION MANUAL(G,F)	E	
-		*	B60-0270-00	INSTRUCTION MANUAL(S,C)	M	
-		*	B60-0272-00	INSTRUCTION MANUAL(D,I)	E	
620	1I		D10-2215-14	LEVER(EJECT)		
621	2I		D10-2216-04	LEVER(EJECT)		
622	2H,3H		D39-0176-05	DAMPER		
⚠ 625	2K		E03-0115-05	AC PLUG ADAPTER	M	
⚠ 626	1N		E30-2592-15	AC POWER CORD	EM	
⚠ 626	1N		E30-2593-15	AC POWER CORD	T	
⚠ 626	1N		E30-2594-15	AC POWER CORD	X	
⚠ 626	1N		E30-2605-05	AC POWER CORD	Y	
627	1L,2J	*	E31-7824-05	WIRING HARNESS		
630	3G		G01-2270-04	TORSION COIL SPRING		
631	3G		G01-2271-04	TORSION COIL SPRING		
632	1I,2I		G01-3318-04	EXTENSION SPRING		
633	3G		G02-0943-04	FLAT SPRING		
-		*	H01-8905-04	ITEM CARTON CASE	E	S
-		*	H01-8906-04	ITEM CARTON CASE	YMX	S
-		*	H01-8926-04	ITEM CARTON CASE	T	S
-		*	H10-5067-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-5068-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0377-04	PROTECTION BAG	EYXT	S
-		*	H25-0394-04	PROTECTION BAG		J
-		*	H25-0394-04	PROTECTION BAG	M	S
-		*	H50-0026-04	ITEM CARTON CASE	YMX	J

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No. 2

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
-		*	H50-0029-04	ITEM CARTON CASE	ET	J
634	3M		J02-1013-05	FOOT(F)		
635	3N		J02-0366-15	FOOT(R)		
638	2K		J19-2815-04	ANTENNA HOLDER		
640	1I,2I		J31-0498-04	COLLAR		
641	1N		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
645	3G		K29-2507-04	KNOB(BALANCE)		
646	2H		K29-3737-04	KNOB(EJECT)		
647	1I	*	K29-4039-03	KNOB(TU/1-0)		
648	1I	*	K29-4040-03	KNOB(+10,ADJ,PROG)		
649	1J	*	K29-4041-03	KNOB(BAND,TUNING)		
650	2I	*	K29-4042-02	KNOB(DECK)		
651	2J	*	K29-4043-02	KNOB(CD)		
652	2G	*	K29-4044-04	KNOB ASSY(VOLUME CONTROL)		
653	1I	*	K29-4083-04	KNOB(POWER)		
654	1I	*	K29-4084-03	KNOB(INPUT SELECTOR)		
655	1J	*	K29-4085-03	KNOB(BASS BOOST,SUR/LOUD)		
656	1I	*	K29-4086-04	KNOB(REFERENCE/MANUAL)		
657	2I	*	K29-4087-03	KNOB(MEMORY,1-5)		
658	2J	*	K29-4088-03	KNOB(EQ CONTROL)		
659	3H	*	K29-4159-04	KNOB(SOURCE-MIC)	YMX	
⚠ 660	3N	*	L07-0179-05	POWER TRANSFORMER	E	
⚠ 660	3N	*	L07-0180-05	POWER TRANSFORMER	M	
⚠ 660	3N	*	L07-0181-05	POWER TRANSFORMER	Y	
⚠ 660	3N	*	L07-0182-05	POWER TRANSFORMER	T	
⚠ 660	3N	*	L07-0292-05	POWER TRANSFORMER	X	
A			N89-3008-45	BINDING HEAD TAPTITE SCREW		
B			N89-3008-46	BINDING HEAD TAPTITE SCREW		
C		*	N09-2782-05	TAPTITE SCREW (2.6X8)		
D			N89-4008-46	BINDING HEAD TAPTITE SCREW		
F			N09-1236-05	TAPTITE SCREW		
661	2K		T90-0173-05	LOOP ANTENNA		
662	2K		T90-0176-05	T TYPE ANTENNA		
663	2K		T90-0177-05	ANTENNA ADAPTOR	ET	
AUDIO UNIT (X09-336X-XX: J, X09-323X-XX:S)						
C1 ,2			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6			CC45FSL1H680J	CERAMIC 68PF J		
C7 ,8			CE04KW1A101M	ELECTRO 100UF 10WV		
C9 ,10			CC45FSL1H101J	CERAMIC 100PF J		
C11 ,12			CC45FSL1H680J	CERAMIC 68PF J		
C13 ,14			CC45FSL1H020C	CERAMIC 2.0PF C		
C15 ,16			CC45FSL1H221J	CERAMIC 220PF J		
C17 ,18			CK45FF1H103Z	CERAMIC 0.010UF Z		
C19 ,20			CK45FB1H332K	CERAMIC 3300PF K		
C21 ,22			CF92FV1H473J	MF 0.047UF J		
C25 ,26			CF92FV1H562J	MF 5600PF J	ET	
C27 ,28			CK45FF1H103Z	CERAMIC 0.010UF Z		
C29 ,30			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C31 ,32			CC45FSL1H221J	CERAMIC 220PF J	ET	
C33 ,34			CK45FB1H471K	CERAMIC 470PF K		
C35 -38			CE04KW1H010M	ELECTRO 1.0UF 50WV		

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No. 3

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C39 ,40			CF92FV1H224J	MF	0.22UF	J		
C41 ,42			CF92FV1H474J	MF	0.47UF	J		
C43 ,44			CF92FV1H913J	MF	0.091UF	J		
C45 ,46			CF92FV1H184J	MF	0.18UF	J		
C47 ,48			CF92FV1H333J	MF	0.033UF	J		
C49 ,50			CF92FV1H683J	MF	0.068UF	J		
C51 ,52			CF92FV1H133J	MF	0.013UF	J		
C53 ,54			CF92FV1H303J	MF	0.030UF	J		
C55 ,56			CF92FV1H562J	MF	5600PF	J		
C57 ,58			CF92FV1H123J	MF	0.012UF	J		
C59 ,60			CF92FV1H222J	MF	2200PF	J		
C61 ,62			CF92FV1H472J	MF	4700PF	J		
C63 ,64			CF92FV1H821J	MF	820PF	J		
C65 ,66			CE04KW1V100M	ELECTRO	10UF	35WV		
C67 ,68			CF92FV1H273J	MF	0.027UF	J	YMX	
C69 ,70			CF92FV1H104J	MF	0.10UF	J	YMX	
C71 ,72			CF92FV1H153J	MF	0.015UF	J	YMX	
C73 -76			CK45FB1H391K	CERAMIC	390PF	K	YMX	
C77 ,78			CK45FB1H222K	CERAMIC	2200PF	K	YMX	
C79 -82			CE04KW1H010M	ELECTRO	1.0UF	50WV	YMX	
C83 ,84			CK45FF1H103Z	CERAMIC	0.010UF	Z	YMX	
C85			CE04KW1A101M	ELECTRO	100UF	10WV		
C86			CE04KW1A470M	ELECTRO	47UF	10WV		
C87			CE04KW1A101M	ELECTRO	100UF	10WV		
C88		*	CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C89 ,90			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C91			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C92			CE04KW0J222M	ELECTRO	2200UF	6.3WV		
C93			CE04KW1V100M	ELECTRO	10UF	35WV		
C94			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C95			CE04KW0J221M	ELECTRO	220UF	6.3WV		
C96			CE04KW1H010M	ELECTRO	1.0UF	50WV	YMX	
C97			CE04KW1V100M	ELECTRO	10UF	35WV	YMX	
C98 ,99			CE04KW1C101M	ELECTRO	100UF	16WV	YMX	
C100			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C101			CE04KW1H470M	ELECTRO	47UF	50WV		
C102			CE04KW1H101M	ELECTRO	100UF	50WV		
C103,104			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C105,106			C90-1745-05	ELECTRO	3300UF	42WV	YMX	
C105,106			C90-1780-05	ELECTRO	4700UF	50WV	ET	
C107,108			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C109			CE04KW1V471M	ELECTRO	470UF	35WV		
C110			CE04KW1C220M	ELECTRO	22UF	16WV		
C111			CK45FB1H102K	CERAMIC	1000PF	K		
C112,113			CE04KW1C470M	ELECTRO	47UF	16WV		
C114			CE04KW1C220M	ELECTRO	22UF	16WV		
C115			CK45FB1H102K	CERAMIC	1000PF	K		
C116-118			CE04KW1C470M	ELECTRO	47UF	16WV		
C119			CE04KW1V100M	ELECTRO	10UF	35WV		
C120			CE04KW1A470M	ELECTRO	47UF	10WV		
C121			CE04KW1C470M	ELECTRO	47UF	16WV		
C122			CE04KW1A470M	ELECTRO	47UF	10WV		
C123			CE04KW1H101M	ELECTRO	100UF	50WV		
C124			CE04KW1J470M	ELECTRO	47UF	63WV		
C125			CE04KW1H470M	ELECTRO	47UF	50WV		

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No. 4

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格				Destination 仕向	Remarks 備考
C126			CE04KW1V470M	ELECTRO	47UF	35WV			
C127			CE04KW1A470M	ELECTRO	47UF	10WV			
C128			CE04KW1V470M	ELECTRO	47UF	35WV			
C129			CE04KW1V332M	ELECTRO	3300UF	35WV			
C130			CE04KW1C101M	ELECTRO	100UF	16WV			
⚠ C131			C91-1421-05	FILM	0.01UF	250AC		EXT	
⚠ C132			C91-1421-05	FILM	0.01UF	250AC		YM	
C133,134			CK45FF1H103Z	CERAMIC	0.010UF	Z			
J1	2H		E11-0160-05	PHONE JACK	(PHONES)				
J2	1L		E20-0475-05	LOCK TERMINAL BOARD(FRONT SP.)					
J3	1M		E13-0235-05	PHONO JACK	(REAR SPEAKERS)			YMX	
⚠ F1			F05-1623-05	FUSE (SEMKO)	(250V T1.6A)			X	
⚠ F1			F05-8013-05	FUSE (SEMKO)	(250V T800mA)			ET	
⚠ F2 ,3			F05-1623-05	FUSE (SEMKO)	(250V T1.6A)			YM	
⚠ F4			F53-0021-05	FUSE				ET	
⚠ F5			F53-0021-05	FUSE				YMX	
⚠ F6			F53-0021-05	FUSE					
⚠ F7 ,8		*	F53-0016-05	FUSE					
CN1 ,2			J13-0075-05	FUSE CLIP				EXT	
CN3 -6			J13-0075-05	FUSE CLIP				YM	
⚠ L1			L79-0785-05	LINE FILTER				EXT	
⚠ L2			L79-0785-05	LINE FILTER				YM	
L3 ,4			L40-2201-17	LINE FILTER					
A			N89-3008-45	BINDING HEAD TAPTITE SCREW					
B			N89-3008-46	BINDING HEAD TAPTITE SCREW					
E			N09-1236-05	TAPPING SCREW (3X12)					
CP1 ,2			R90-0187-05	MULTI-COMP	0.22X2	K	5W		
R13 -16			RD14NB2E221J	RD	220	J	1/4W		
R17 ,18		*	RD14NB2E392J	RD	3.9K	J	1/4W		
R19 ,20			RD14NB2E271J	RD	270	J	1/4W		
R31 -34			RD14NB2E470J	RD	47	J	1/4W		
R39 ,40			RS14KB3D100J	FL-PROOF RS	10	J	2W		
R41 ,42			RS14KB3A561J	FL-PROOF RS	560	J	1W		
R101			RD14NB2E470J	RD	47	J	1/4W		
R102			RD14NB2E101J	RD	100	J	1/4W		
R105			RD14NB2E101J	RD	100	J	1/4W		
R108		*	RS14KB3D1R8J	FL-PROOF RS	1.8	J	2W		
R109			R92-0514-05	FUSE RESIST	4.7	J	1/4W		
R112			RS14KB3D470J	FL-PROOF RS	47	J	2W		
R115			RS14KB3D1R0J	FL-PROOF RS	1.0	J	2W		
R119			RS14KB3D270J	FL-PROOF RS	27	J	2W		
R121			R92-0514-05	FUSE RESIST	4.7	J	1/4W		
R124			R92-0514-05	FUSE RESIST	4.7	J	1/4W		
R128			RS14KB3D332J	FL-PROOF RS	3.3K	J	2W		
R140			RD14NB2E100J	RD	10	J	1/4W		
R163,164			RD14NB2E100J	RD	10	J	1/4W	YMX	
R174			RD14NB2E330J	RD	33	J	1/4W		
VR1	2L	*	R29-5046-05	POTENTIOMETER(100KX2)(VOLUME)					
VR2	2M	*	R05-5040-05	POTENTIOMETER(200K)(BALANCE)					
K1			S51-2092-05	MAGNETIC RELAY					
⚠ S1	1M		S31-2322-05	SLIDE SWITCH(AC120-220-240V)				M	
⚠ S2	1M	*	S62-0001-05	SLIDE SWITCH(AC120-240V)				Y	

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No. 5

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D1 ,2			HSS104	DIODE		
D1 ,2			1SS133	DIODE		
D3 ,4			HSS104A	DIODE		
D3 ,4			1SS131	DIODE		
D5			RBV-402LFA	DIODE		
D6 -9			S5566B	DIODE		
D10			HZS13N(B2)	ZENER DIODE	EXT	
D10			HZS6.8N(B2)	ZENER DIODE	YM	
D10			RD13ES(B2)	ZENER DIODE	EXT	
D10			RD6.8ES(B2)	ZENER DIODE	YM	
D11			HZS13N(B2)	ZENER DIODE		
D11			RD13ES(B2)	ZENER DIODE		
D12 ,13			HZS6.2N(B2)	ZENER DIODE		
D12 ,13			RD6.2ES(B2)	ZENER DIODE		
D14 ,15			S5566B	DIODE		
D16			HZS16N(B2)	ZENER DIODE		
D16			RD16ES(B2)	ZENER DIODE		
D17			HZS18N(B)	ZENER DIODE		
D17			RD18ES(B)	ZENER DIODE		
D18			HZS4.7N(B)	ZENER DIODE		
D18			RD4.7ES(B)	ZENER DIODE		
D19 -21			HSS104	DIODE		
D19 -21			1SS133	DIODE		
D22			HZS5.1S(B2)	ZENER DIODE		
D22			RD5.1JS(B2)	ZENER DIODE		
D23			S5566B	DIODE		
D24			HSS104A	DIODE		
D24			1SS131	DIODE		
D25			HZS6.8N(B2)	ZENER DIODE		
D25			RD6.8ES(B2)	ZENER DIODE		
D26			HZS5.1S(B2)	ZENER DIODE		
D26			RD5.1JS(B2)	ZENER DIODE		
D27			HZS6.8N(B2)	ZENER DIODE		
D27			RD6.8ES(B2)	ZENER DIODE		
D28			HZS3.9N(B2)	ZENER DIODE		
D28			RD3.9ES(B2)	ZENER DIODE		
D29			HZS3.9N(B2)	ZENER DIODE	YMX	
D29			RD3.9ES(B2)	ZENER DIODE	YMX	
D30			HSS104A	DIODE		
D30			1SS131	DIODE		
D31			S5566B	DIODE		
D32 -39			HSS104	DIODE		
D32 -39			1SS133	DIODE		
D40			HZS5.1S(B2)	ZENER DIODE	YM	
D40			RD5.1JS(B2)	ZENER DIODE	YM	
IC1 ,2			M5229P	IC(7CH GRAPHIC EQUALIZER)		
IC3			NJU7305L	IC(ELECTRIC VOLUME)		
IC4			TA8409S	IC(MOTOR CONTROL)		
IC5			TC9215P	IC(ANALOG SWITCH X 6)	YMX	
IC6			UPC4574C	IC(OP AMP X4)	YMX	
Q1 -4			2SA733(A)(Q,P)	TRANSISTOR		
Q1 -4			2SA933S(Q,R)	TRANSISTOR		
Q5 -8			2SC1845(F,E)	TRANSISTOR		
Q9 ,10			2SA992(F,E)	TRANSISTOR		
⚠ Q11 ,12			2SD2254	TRANSISTOR	YMX	

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No. 6

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
⚠ Q11 ,12		*	2SD2340	TRANSISTOR	ET	
⚠ Q13 ,14			2SB1492	TRANSISTOR	YMX	
⚠ Q13 ,14		*	2SB1531	TRANSISTOR	ET	
Q15 ,16			2SC4137(V,W)	TRANSISTOR		
Q17 ,18			2SC1845(F,E)	TRANSISTOR		
Q19 ,20			2SC2878(B)	TRANSISTOR		
Q21 ,22			2SC2878(B)	TRANSISTOR	YMX	
Q23			2SA733(A)(Q,P)	TRANSISTOR		
Q23			2SA933S(Q,R)	TRANSISTOR		
Q24			2SC1740S(Q,R)	TRANSISTOR		
Q24			2SC945(A)(Q,P)	TRANSISTOR		
Q25			2SC2878(B)	TRANSISTOR		
Q26			2SC1740S(Q,R)	TRANSISTOR		
Q26			2SC945(A)(Q,P)	TRANSISTOR		
Q27			2SC2003(L,K)	TRANSISTOR		
Q28			2SA733(A)(Q,P)	TRANSISTOR	YMX	
Q28			2SA933S(Q,R)	TRANSISTOR	YMX	
Q31			2SD1266(Q,P)	TRANSISTOR		
Q32 -34			2SC1740S(Q,R)	TRANSISTOR		
Q32 -34			2SC945(A)(Q,P)	TRANSISTOR		
Q35 ,36			2SA733(A)(Q,P)	TRANSISTOR		
Q35 ,36			2SA933S(Q,R)	TRANSISTOR		
Q37 -39			2SD1266(Q,P)	TRANSISTOR		
Q40 ,41			2SA954(L,K)	TRANSISTOR		
Q42			2SA733(A)(Q,P)	TRANSISTOR		
Q42			2SA933S(Q,R)	TRANSISTOR		
Q43			2SC1740S(Q,R)	TRANSISTOR		
Q43			2SC945(A)(Q,P)	TRANSISTOR		
Q44			2SA733(A)(Q,P)	TRANSISTOR		
Q44			2SA933S(Q,R)	TRANSISTOR		
Q45 ,46			2SC1740S(Q,R)	TRANSISTOR		
Q45 ,46			2SC945(A)(Q,P)	TRANSISTOR		
Q47			2SA733(A)(Q,P)	TRANSISTOR		
Q47			2SA933S(Q,R)	TRANSISTOR		

DISPLAY UNIT (X14-311X-XX: J, X14-295X-XX: S)

D14 -23			B30-1291-05	LED		
C1			CK45FF1H103Z	CERAMIC	0.010UF	Z
C2			CE04KW1A101M	ELECTRO	100UF	10WV
C3			CE04KW1H010M	ELECTRO	1.0UF	50WV
C4			CK45FF1H103Z	CERAMIC	0.010UF	Z
C5 ,6			CC45FCH1H330J	CERAMIC	33PF	J
C7			CE04KW1A101M	ELECTRO	100UF	10WV
C8 ,9			CK45FF1H103Z	CERAMIC	0.010UF	Z
C10			CE04KW1H3R3M	ELECTRO	3.3UF	50WV
C11			CC93FCH1H102J	CERAMIC	1000PF	J
C12			CE04KW1H3R3M	ELECTRO	3.3UF	50WV
C13 ,14			CK45FF1H103Z	CERAMIC	0.010UF	Z
C15			CE04KW1V100M	ELECTRO	10UF	35WV
C16			CK45FF1H103Z	CERAMIC	0.010UF	Z
C17 ,18			CE04KW1V100M	ELECTRO	10UF	35WV
C19 -22			C91-0753-05	CHIP C	470PF	K
L1 ,2			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)		
X1			L77-1176-05	CRYSTAL RESONATOR(4.194304MHz)		
X2			L78-0244-05	RESONATOR(4.0MHz)		

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No. 7

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
CP1 ,2		*	R90-0873-05	MULTI-COMP 470PFX4		
S1 -43	1G,1H		S40-1064-05	PUSH SWITCH		
D1			HSS104	DIODE		
D1			1SS133	DIODE		
D2			HZS8.2N(B2)	ZENER DIODE		
D2			RD8.2ES(B2)	ZENER DIODE		
D3 -13			HSS104	DIODE		
D3 -13			1SS133	DIODE		
D24			HSS104	DIODE		
D24			1SS133	DIODE		
D25			HZS8.2N(B2)	ZENER DIODE		
D25			RD8.2ES(B2)	ZENER DIODE		
D26 -29			HSS104	DIODE		
D26 -29			1SS133	DIODE		
FL1	1G		FIP10HM6	FLUORESCENT INDICATOR TUBE		
FL2	1G	*	FIP7BW11Y	FLUORESCENT INDICATOR TUBE		
IC1		*	UPD75208CW-A97	IC(MICROPROCESSOR)		
IC2		*	M50940-314SP	IC(MICROPROCESSOR)		
IC3			TC74HC42AP	IC(BCD TO DECIMAL DECODER)		
IC4			UPA80C	IC(7CH TRANSISTOR ARRAY)		
IC5			XR-1091DCP	IC(GE DISPLAY FILTER)		
Q1 -3			2SC1740S(Q,R)	TRANSISTOR		
Q1 -3			2SC945(A)(Q,P)	TRANSISTOR		
Q4 -6			DTA124ES	DIGITAL TRANSISTOR		
Q4 -6			UN4112	TRANSISTOR		
A1			W02-0975-05	ELECTRIC CIRCUIT MODULE		
A1			W02-1043-05	OPTIC RECEIVING MODULE		
OPERATION UNIT (X25-4192-70:J, X25-4262-70: S)						
D8 -20			B30-1291-05	LED		
-			N89-2606-45	BINDING HEAD TAPTITE SCREW		
S1 -43	3J		S40-1064-05	PUSH SWITCH		
D1 -7			HSS104A	DIODE		
D1 -7			1SS131	DIODE		
D21 -39			HSS104A	DIODE		
D21 -39			1SS131	DIODE		
FL1	3J		FIP9BPM7	FLUORESCENT INDICATOR TUBE		
Q1 -5			2SA954(L,K)	TRANSISTOR		
RECORD/PLAYBACK UNIT (X28-224X-XX: J, X28-226X-XX: S)						
C1 -4			CK45FF1H103Z	CERAMIC 0.010UF Z		
C5			CE04KW1C470M	ELECTRO 47UF 16WV		
C6 ,7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C9			CC45FSL1H101J	CERAMIC 100PF J		
C10			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C11			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C12			CK45FF1H103Z	CERAMIC 0.010UF Z		
C13			CF92FV1H153J	MF 0.015UF J		
C14 ,15			CK45FF1H223Z	CERAMIC 0.022UF Z		
C16			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C17			CK45FF1H223Z	CERAMIC 0.022UF Z		

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No. 8

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C18			CE04KW1V100M	ELECTRO 10UF 35WV		
C19			CK45FF1H223Z	CERAMIC 0.022UF Z		
C20			CE04KW1V100M	ELECTRO 10UF 35WV		
C21			CE04KW1C101M	ELECTRO 100UF 16WV		
C22			CK45FB1H471K	CERAMIC 470PF K		
C23			CF92FV1H473J	MF 0.047UF J		
C24			CC93FCH1H471J	CERAMIC 470PF J		
C25 ,26			CC45FSL1H101J	CERAMIC 100PF J		
C27 ,28			CF92FV1H153J	MF 0.015UF J		
C29 ,30			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C31			CK45FF1H103Z	CERAMIC 0.010UF Z		
C32			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C33			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C34			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C35			CK45FB1H471K	CERAMIC 470PF K	ET	
C36			CF92FV1H152J	MF 1500PF J	ET	
C37			CF92FV1H132J	MF 1300PF J	ET	
C38			CC45FSL1H121J	CERAMIC 120PF J	ET	
C39			CC45FSL1H271J	CERAMIC 270PF J	ET	
C41 ,42			CC45FCH1H220J	CERAMIC 22PF J		
C43 -45			CK45FB1H471K	CERAMIC 470PF K		
C46 ,47			CK45FF1H103Z	CERAMIC 0.010UF Z		
C48			CF92FV1H273J	MF 0.027UF J		
C49			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C50			CE04KW1C470M	ELECTRO 47UF 16WV		
C51			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C52			CE04KW1A470M	ELECTRO 47UF 10WV		
C56			CC45FSL1H220J	CERAMIC 22PF J		
C106			CE04KW1C470M	ELECTRO 47UF 16WV		
C107			CK45FF1H223Z	CERAMIC 0.022UF Z		
C108			CK45FF1H223Z	CERAMIC 0.022UF Z	ET	
C109,110			C91-0085-05	CERAMIC 0.022UF N	ET	
C111-113			CK45FF1H223Z	CERAMIC 0.022UF Z	ET	
C114			C91-0085-05	CERAMIC 0.022UF N	ET	
C135,136			CF92FV1H822J	MF 8200PF J	YM	
C203,204			CE04KW1V100M	ELECTRO 10UF 35WV		
C205,206			CC45FSL1H221J	CERAMIC 220PF J		
C207,208			CE04KW1A470M	ELECTRO 47UF 10WV		
C209			C91-0754-05	CERAMIC 560PF J	YMX	
C209			C91-0757-05	CERAMIC 1000PF K	ET	
C210			CK45FB1H102K	CERAMIC 1000PF K	ET	
C210			CK45FB1H561K	CERAMIC 560PF K	YMX	
C211,212			CF92FV1H123J	MF 0.012UF J		
C213,214			CK45FB1H332K	CERAMIC 3300PF K		
C215,216			CE04KW1HR22M	ELECTRO 0.22UF 50WV	YMX	
C215,216			CE04KW1V100M	ELECTRO 10UF 35WV	ET	
C217-220			CK45FF1H103Z	CERAMIC 0.010UF Z		
C221-224			CE04KW1V100M	ELECTRO 10UF 35WV		
C225,226			CC45FSL1H221J	CERAMIC 220PF J		
C227,228			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C231,232			CC45FSL1H221J	CERAMIC 220PF J		
C233,234			CK45FB1H561K	CERAMIC 560PF K		
C235,236			CE04KW1A470M	ELECTRO 47UF 10WV		
C237-240			CK45FB1H391K	CERAMIC 390PF K		
C241,242			CF92FV1H103J	MF 0.010UF J		

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No. 9

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C243,244			CE04KW1V100M	ELECTRO	10UF	35WV		
C245,246			CF92FV1H823J	MF	0.082UF	J		
C247			CE04KW1A101M	ELECTRO	100UF	10WV		
C248			CE04KW1C470M	ELECTRO	47UF	16WV		
C249,250			CK45FB1H102K	CERAMIC	1000PF	K		
C251,252			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C253,254			CE04KW1HR22M	ELECTRO	0.22UF	50WV		
C255,256			CE04KW1V100M	ELECTRO	10UF	35WV		
C257			CE04KW1C101M	ELECTRO	100UF	16WV		
C258			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C259			CE04KW1C220M	ELECTRO	22UF	16WV		
C260,261			CE04KW1H3R3M	ELECTRO	3.3UF	50WV		
C262,263			CE04KW1V100M	ELECTRO	10UF	35WV		
C264,265			CE04KW1HR22M	ELECTRO	0.22UF	50WV		
C266,267			CE04KW1A101M	ELECTRO	100UF	10WV		
C268,269			CE04KW1V100M	ELECTRO	10UF	35WV		
C270			CE04KW1C331M	ELECTRO	330UF	16WV		
C272			CE04KW1V100M	ELECTRO	10UF	35WV		
C273			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C274			CF92FV1H392J	MF	3900PF	J		
C275			CF92FV1H123J	MF	0.012UF	J		
C276			CF92FV1H392J	MF	3900PF	J		
C277			CE04KW1V100M	ELECTRO	10UF	35WV		
C278,279			CC45FSL1H221J	CERAMIC	220PF	J		
C280			CQ93HP2A103J	MYLAR	0.010UF	J		
C281,282			CK45FB1H821K	CERAMIC	820PF	K		
C283			CE04KW1C470M	ELECTRO	47UF	16WV		
C284			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C285			CF92FV1H471J	MF	470PF	J		
C287,288			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C289,290			CK45FB1H102K	CERAMIC	1000PF	K		
C291,292			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C293,294			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C295,296			CE04KW1V100M	ELECTRO	10UF	35WV		
C297,298			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C299,300			CE04KW1V100M	ELECTRO	10UF	35WV		
C301,302			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C303			CC45FSL1H221J	CERAMIC	220PF	J		
C304			CE04KW1V100M	ELECTRO	10UF	35WV		
C305			CE04KW1C101M	ELECTRO	100UF	16WV		
C306			CK45FB1H332K	CERAMIC	3300PF	K		
C307			CF92FV1H104J	MF	0.10UF	J		
C308			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C309			CC45FSL1H221J	CERAMIC	220PF	J		
C310			CE04KW1V100M	ELECTRO	10UF	35WV		
C311			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C312-314			CE04KW1V100M	ELECTRO	10UF	35WV		
C315			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C316			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C317			CE04KW1A101M	ELECTRO	100UF	10WV		
C318			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C319			CK45FB1H102K	CERAMIC	1000PF	K		
C320,321			CE04KW1V100M	ELECTRO	10UF	35WV		
C351			CE04KW1H010M	ELECTRO	1.0UF	50WV	YMX	
C352			CC45FSL1H221J	CERAMIC	220PF	J	YMX	

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No. 10

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C353			CE04KW1V100M	ELECTRO	10UF	35WV	YMX	
C354			CC45FSL1H221J	CERAMIC	220PF	J	YMX	
C355			CK45FB1H102K	CERAMIC	1000PF	K	YMX	
C356			CK45FF1H103Z	CERAMIC	0.010UF	Z	YMX	
C357			CE04KW1V100M	ELECTRO	10UF	35WV	YMX	
C358			CK45FF1H103Z	CERAMIC	0.010UF	Z	YMX	
C359			CE04KW1H010M	ELECTRO	1.0UF	50WV	YMX	
C360			CK45FB1H102K	CERAMIC	1000PF	K	YMX	
C361			CE04KW1H010M	ELECTRO	1.0UF	50WV	YMX	
C362			CK45FB1H102K	CERAMIC	1000PF	K	YMX	
C363			CE04KW1V4R7M	ELECTRO	4.7UF	35WV	YMX	
C364			CE04KW1H0R1M	ELECTRO	0.1UF	50WV	YMX	
J1	2N		E20-0321-05	LOCK TERMINAL BOARD(ANTENNA)			ET	
J1	2N		E20-0476-05	LOCK TERMINAL BOARD(ANTENNA)			YMX	
J3	2N		E13-0255-05	PHONO JACK (PHONO)				
J4	3H		E11-0159-05	PHONE JACK (MIC)			YMX	
J8 -10			J11-0098-05	WIRE CLAMPER				
CF1 ,2			L72-0531-05	CERAMIC FILTER			YMX	
CF1 ,2			L72-0536-05	CERAMIC FILTER			ET	
CF3			L72-0096-05	CERAMIC FILTER				
L1			L30-0488-05	AM IFT				
L2			L30-0439-25	FM IFT				
L3			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)			ET	
L4			L40-5625-29	SMALL FIXED INDUCTOR(5.6MH,J)			ET	
L5			L40-6825-29	SMALL FIXED INDUCTOR(6.8MH,J)			ET	
L8			L40-1091-17	SMALL FIXED INDUCTOR(1.0UH)				
L104			L39-0189-05	COMBINATION COIL			YMX	
L104			L39-0195-05	COMBINATION COIL			ET	
L105			L39-0192-05	COMBINATION COIL			ET	
L106			L40-1091-17	SMALL FIXED INDUCTOR(1.0UH)				
L201,202			L79-0720-05	LC FILTER				
L203,204			L39-0145-05	LW OSCILLATING COIL				
L205			L32-0390-05	BIAS OSCILATING COIL				
X1			L77-1122-05	CRYSTAL RESONATOR(7.2MHZ)				
X11			L78-0209-05	RESONATOR (4.194MHZ)				
B			N89-3008-46	BINDING HEAD TAPTITE SCREW				
CP1			R90-0819-05	MULTIPLE RESISTOR	47KX6			
CP2			R90-0487-05	MULTI-COMP	47KX4	J 1/6W		
CP3			R90-0804-05	MULTI-COMP	47KX8	J 1/4W		
CP4			R90-0857-05	MULTI-COMP	1KX8	J		
CP5		*	R90-0812-05	MULTIPLE RESISTOR	10KX10			
CP6			R90-0818-05	MULTIPLE RESISTOR	47KX5			
CP7			R90-0858-05	MULTI-COMP	1KX5	J		
CP8			R90-0856-05	MULTI-COMP	10KX5	J		
R8			RD14NB2E101J	RD	100	J 1/4W		
R21			RD14NB2E101J	RD	100	J 1/4W		
R37			RD14NB2E101J	RD	100	J 1/4W		
R53			RS14KB3D221J	FL-PROOF RS	220	J 2W		
R111			RD14NB2E101J	RD	100	J 1/4W		
R250		*	RD14NB2E391J	RD	390	J 1/4W		
R257			RD14NB2E221J	RD	220	J 1/4W		
R276			RD14NB2E101J	RD	100	J 1/4W		

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No. 11

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
R318			RD14NB2E100J	RD 10 J 1/4W		
R324,325		*	RD14NB2E3R3J	RD 3.3 J 1/4W		
R328		*	RD14NB2E471J	RD 470 J 1/4W		
R353		*	RD14NB2E471J	RD 470 J 1/4W		
VR1			R12-3130-05	TRIMMING POT.(33K)(FM TUNE L)		
VR2			R12-1089-05	TRIMMING POT.(4.7K)(VCO)		
VR3			R12-3126-05	TRIMMING POT.(10K)(AM TUNE L)		S
VR4			R12-8015-05	TRIMMING POT.(1M) (SEPARATION)	ET	
VR11-16			R12-3128-05	TRIMMING POT.(22K)(P.B.LEVEL)		
VR17,18			R12-5071-05	TRIMMING POT.(220K)(BIAS)		
VR19-22			R12-1085-05	TRIM POT. 2.2K		
VR23	3H	*	R10-5041-05	POTENTIOMETER(100K X2)(MIC)	YMX	
S101	2N		S31-2094-05	SLIDE SWITCH (DE-EM,CH.SP)	YM	
S111	2N		S31-2094-05	SLIDE SWITCH (BEAT CANCEL)		
D1			HSS104	DIODE	ET	
D1			1SS133	DIODE	ET	
D2			HSS104	DIODE		
D2			1SS133	DIODE		
D3			HZS5.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4 ,5			HSS104	DIODE		
D4 ,5			1SS133	DIODE		
D101			HSS104	DIODE	ET	
D101			1SS133	DIODE	ET	
D103			HSS104	DIODE	ET	
D103			1SS133	DIODE	ET	
D109,110			HSS104	DIODE	ET	
D109,110			1SS133	DIODE	ET	
D111,112			HSS104	DIODE		
D111,112			1SS133	DIODE		
D113-116			HSS104	DIODE	ET	
D113-116			1SS133	DIODE	ET	
D201,202			HSS104	DIODE		
D201,202			1SS133	DIODE		
D203,204			HZS6.8N(B2)	ZENER DIODE		
D203,204			RD6.8ES(B2)	ZENER DIODE		
D205			HSS104	DIODE		
D205			1SS133	DIODE		
D206			HZS8.2S(B2)	ZENER DIODE		
D206			RD8.2JS(B2)	ZENER DIODE		
D207-210			HSS104	DIODE		
D207-210			1SS133	DIODE		
D211			HZS5.1S(B2)	ZENER DIODE		
D211			RD5.1JS(B2)	ZENER DIODE		
D212-219			HSS104	DIODE		
D212-219			1SS133	DIODE		
D220-222			S5566B	DIODE		
D223-226			HSS104	DIODE		
D223-226			1SS133	DIODE		
D227-229			S5566B	DIODE		
D230-241			HSS104	DIODE		
D230-241			1SS133	DIODE		
D251-254			HSS104	DIODE	YMX	
D251-254			1SS133	DIODE	YMX	

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No. 12

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IC1			LA1265	IC(FM/AM TUNER)		
IC2			AN7470	IC(FM MPX)		
IC3			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC11			NJM4558D-A	IC(OP AMP X2)		
IC12			TC4052BP	IC(4CH MPX/DE-MPX)		
IC13			NJM4565D	IC(OP AMP X2)		
IC14			CXA1115BP	IC(PLAY/BACK AMP)		
IC15			HA12136A	IC(DOLBY B NR)		
IC16			CXA1198AP	IC(CASSETTE DECK REC EQUALIZER		
IC17			UPC1330HA	IC(2CH HEAD SWITCHING)		
IC18			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC19			NJM4565D	IC(OP AMP X2)		
IC20		*	UPD75112CW-098	IC(MICROPROCESSOR)		
IC21			TC4051BP	IC(8CH MPX/ DE-MPX)		
IC22			NJM4558D-A	IC(OP AMP X2)	YMX	
Q1			2SC1923(R,O)	TRANSISTOR		
Q2			2SC1845(F,E)	TRANSISTOR		
Q3			2SC1740S(Q,R)	TRANSISTOR		
Q3			2SC945(A)(Q,P)	TRANSISTOR		
Q4			2SC1740S(Q,R)	TRANSISTOR	ET	
Q4			2SC945(A)(Q,P)	TRANSISTOR	ET	
Q5			2SK163(L,M)	FET	ET	
Q5			2SK364(GR,BL)	FET	ET	
Q102			2SA733(A)(Q,P)	TRANSISTOR		
Q102			2SA933S(Q,R)	TRANSISTOR		
Q103			2SA733(A)(Q,P)	TRANSISTOR	ET	
Q103			2SA933S(Q,R)	TRANSISTOR	ET	
Q104			2SA733(A)(Q,P)	TRANSISTOR		
Q104			2SA933S(Q,R)	TRANSISTOR		
Q105,106			2SC1740S(Q,R)	TRANSISTOR	ET	
Q105,106			2SC945(A)(Q,P)	TRANSISTOR	ET	
Q107,108			2SC1740S(Q,R)	TRANSISTOR	YM	
Q107,108			2SC945(A)(Q,P)	TRANSISTOR	YM	
Q205,206			DTC124EN	DIGITAL TRANSISTOR		
Q207-217			2SC1740S(Q,R)	TRANSISTOR		
Q207-217			2SC945(A)(Q,P)	TRANSISTOR		
Q218,219			2SC2878(B)	TRANSISTOR		
Q220			DTA124EN	DIGITAL TRANSISTOR		
Q229			2SC1740S(Q,R)	TRANSISTOR		
Q229			2SC945(A)(Q,P)	TRANSISTOR		
Q231,232			DTC124EN	DIGITAL TRANSISTOR		
Q233			2SC1740S(Q,R)	TRANSISTOR		
Q233			2SC945(A)(Q,P)	TRANSISTOR		
Q234			2SD863(E,F)	TRANSISTOR		
Q235,236			2SC945(A)(Q,P)	TRANSISTOR		
Q237,238			2SC1845(F,E)	TRANSISTOR		
Q239			2SA992(F,E)	TRANSISTOR		
Q240,241			2SC1845(F,E)	TRANSISTOR		
Q242-244			2SC1740S(Q,R)	TRANSISTOR		
Q242-244			2SC945(A)(Q,P)	TRANSISTOR		
Q245,246			2SA733(A)(Q,P)	TRANSISTOR		
Q245,246			2SA933S(Q,R)	TRANSISTOR		
Q247			DTC124EN	DIGITAL TRANSISTOR		
Q248-250			2SC3246	TRANSISTOR		
Q251			2SA733(A)(Q,P)	TRANSISTOR		

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No. 13

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
Q251			2SA933S(Q,R)	TRANSISTOR				
Q252			DTC124EN	DIGITAL TRANSISTOR				
Q253-255			2SC3246	TRANSISTOR				
Q261-263			2SC1740S(Q,R)	TRANSISTOR			YMX	
Q261-263			2SC945(A)(Q,P)	TRANSISTOR			YMX	
DT2	2N		W02-1042-05	FM FRONT-END ASSY			YMX	
DT3	2N		W02-1041-05	FM FRONT-END ASSY			ET	
CD PLAYER UNIT (X32-1950-00: J, X32-1812-70: S)								
C1			CE04KW1A101M	ELECTRO	100UF	10WV		
C2			CE04KW1A470M	ELECTRO	47UF	10WV		
C4			CC45FSL1H330J	CERAMIC	33PF	J		
C5			CF92FV1H332J	MF	3300PF	J		
C6			CF92FV1H333J	MF	0.033UF	J		
C7			CF92FV1H103J	MF	0.010UF	J		
C8			CF92FV1H102J	MF	1000PF	J		
C9 ,10			CE04KW1A101M	ELECTRO	100UF	10WV		
C11			CK45FB1H102K	CERAMIC	1000PF	K		
C12			CF92FV1H123J	MF	0.012UF	J		
C13			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C14			CF92FV1H223J	MF	0.022UF	J		
C15			CE04KW1V100M	ELECTRO	10UF	35WV		
C16			C90-1334-05	NP-ELEC	47UF	10WV		
C17			CF92FV1H472J	MF	4700PF	J		
C18			CC45FSL1H181J	CERAMIC	180PF	J		
C19 ,20			CF92FV1H363J	MF	0.036UF	J		
C21			CF92FV1H224J	MF	0.22UF	J		
C22			C90-1350-05	NP-ELEC	2.2UF	50WV		
C23			CF92FV1H124J	MF	0.12UF	J		
C24			CK45FB1H561K	CERAMIC	560PF	K		
C25			CF92FV1H753J	MF	0.075UF	J		
C26			CF92FV1H394J	MF	0.39UF	J		
C27			CK45FB1H122K	CERAMIC	1200PF	K		
C28			C90-1332-05	NP-ELEC	10UF	25WV		
C29			CF92FV1H103J	MF	0.010UF	J		
C30			CE04KW1C470M	ELECTRO	47UF	16WV		
C31			CF92FV1H103J	MF	0.010UF	J		
C32			CE04KW1C470M	ELECTRO	47UF	16WV		
C35			CF92FV1H103J	MF	0.010UF	J		
C36			CE04KW1A101M	ELECTRO	100UF	10WV		
C37			CE04KW1H3R3M	ELECTRO	3.3UF	50WV		
C38			CE04KW1A101M	ELECTRO	100UF	10WV		
C39			CC45FSL1H820J	CERAMIC	82PF	J		
C40			CC45FSL1H330J	CERAMIC	33PF	J		
C41			CC45FSL1H070D	CERAMIC	7.0PF	D		
C42 ,43			CK45FB1H222K	CERAMIC	2200PF	K		
C44			CF92FV1H124J	MF	0.12UF	J		
C45			CC45FSL1H101J	CERAMIC	100PF	J		
C46			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C47 ,48			CE04KW1A470M	ELECTRO	47UF	10WV		
C49			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C50			CK45FB1H222K	CERAMIC	2200PF	K		
C51			CE04KW1HR47M	ELECTRO	0.47UF	50WV		
C52			CF92FV1H333J	MF	0.033UF	J		
C53			CE04KW1A470M	ELECTRO	47UF	10WV		

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No. 14

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C54			CF92FV1H473J	MF	0.047UF	J		
C55			CE04KW0J331M	ELECTRO	330UF	6.3WV		
C56			CE04KW1V101M	ELECTRO	100UF	35WV		
C57 ,58			CE04KW1A101M	ELECTRO	100UF	10WV		
C59 ,60			CF92FV1H752J	MF	7500PF	J		
C61 ,62			CF92FV1H122J	MF	1200PF	J		
C63 -66			CF92FV1H182J	MF	1800PF	J		
C67 ,68			C90-1332-05	NP-ELEC	10UF	25WV		
C69			C90-1455-05	NP-ELEC	0.1UF	50WV		
C70 ,71			CE04KW0J221M	ELECTRO	220UF	6.3WV		
C72 ,73			CE04KW1A470M	ELECTRO	47UF	10WV		
C74			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C75			C90-1349-05	NP-ELEC	1UF	50WV		
C76			CK45FB1H102K	CERAMIC	1000PF	K		
C77 ,78			CC45FCH1H470J	CERAMIC	47PF	J		
C79			C90-1350-05	NP-ELEC	2.2UF	50WV		
C80			CE04KW1C222M	ELECTRO	2200UF	16WV		
C81			CE04KW1C102M	ELECTRO	1000UF	16WV		
C82 ,83			CC45FSL1H150J	CERAMIC	15PF	J		
C84			C90-1332-05	NP-ELEC	10UF	25WV		
C85 ,86			C90-1352-05	NP-ELEC	4.7UF	25WV		
C100,101			CK45FF1H103Z	CERAMIC	0.010UF	Z		
CN1			E10-2703-05	FLAT CABLE CONNECTOR				
⚠ F1 ,2			F53-0015-05	FUSE	(250V 0.8A)			
L1			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)				
L2			L32-0355-05	OSCILATING COIL				
L3			L40-2291-17	SMALL FIXED INDUCTOR(2.2UH)				
X1			L78-0267-05	RESONATOR	(4.19MHz)			
X2			L77-1164-05	CRYSTAL RESONATOR(16.9344MHz)				
-			N30-3006-46	PAN HEAD MACHINE SCREW				
-			N89-3006-46	BINDING HEAD TAPTITE SCREW				
R47			RD14GB2E4R7J	FL-PROOF RD	4.7	J 1/4W		
R124			R92-0228-05	FUSE RESIST	100	G 1/4W		
VR1 ,2			R12-3128-05	TRIMMING POT.(22K)(TE/FE BAL.)				
VR3 ,4			R12-3126-05	TRIMMING POT.(10K)(F/T GAIN)				
D1 ,2			HSS104	DIODE				
D1 ,2			1SS133	DIODE				
D3			1SV147	VARISTOR				
D4			HSS104	DIODE				
D4			1SS133	DIODE				
D5			HZS2.7N(B2)	ZENER DIODE				
D5			RD2.7ES(B2)	ZENER DIODE				
D6 -9			HZS5.1S(B2)	ZENER DIODE				
D6 -9			RD5.1JS(B2)	ZENER DIODE				
D11 ,12			HSS104	DIODE				
D11 ,12			1SS133	DIODE				
D15			HZS5.1S(B2)	ZENER DIODE				
D15			RD5.1JS(B2)	ZENER DIODE				
D16 -20			S5566B	DIODE				
D21			HZS6.8N(B2)	ZENER DIODE				
D21			RD6.8ES(B2)	ZENER DIODE				
IC1			CXA1081S	IC(RF AMP)				

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
IC2			CXA1244S	IC(SERVO SIGNAL PROCESSOR)		
IC3			CXD1167Q	IC(DIGITAL SIGNAL PROCESSOR)		
IC5			TC4066BP	IC(ANALOG/ DIGITAL SW)		
IC6			BA10393	IC(DUAL COMPALATOR)		
IC7 ,8			NJM4558D	IC(OP AMP X2)		
IC11			UPD6376CX	IC(D/A CONVETER)		
IC12-14			NJM4558D	IC(OP AMP X2)		
IC15			UPD75212ACW-157	IC(MICROPROCESSOR)		
Q1			2SA1534A	TRANSISTOR		
Q2			2SA733(A)(Q,P)	TRANSISTOR		
Q2			2SA933S(Q,R)	TRANSISTOR		
Q4			2SC1740S(Q,R)	TRANSISTOR		
Q4			2SC945(A)(Q,P)	TRANSISTOR		
Q5			2SD1266	TRANSISTOR		
Q6 ,7			2SA1534A	TRANSISTOR		
Q8			2SC3940A	TRANSISTOR		
Q9			STA341M	TRANSISTOR		
Q14 ,15			2SC2878(B)	TRANSISTOR		
Q16			DTA124ES	DIGITAL TRANSISTOR		
Q17 ,18			2SC2878(B)	TRANSISTOR		
Q19			2SD1266	TRANSISTOR		
Q20			2SA1534A	TRANSISTOR		
Q21			DTC124ES	DIGITAL TRANSISTOR		
Q22			DTA124ES	DIGITAL TRANSISTOR		
Q23			2SC3940A	TRANSISTOR		
CD MECHANISM ASS'Y (X92-1370-91) JAPAN MADE						
1	1A		A10-2563-01	CHASSIS		
4	2B		A11-0623-08	SUB CHASSIS		
DM	3B		A11-0675-08	SUB CHASSIS ASSY(DISC MOTOR)		
8	2B		B09-0098-08	CAP		
14	1B		D10-2324-03	SLIDER		
15	3B		D10-2325-04	ROD		
16	1B		D13-0807-04	GEAR(INTERMEDIATE)		
17	1B		D13-0808-02	GEAR(MAIN)		
18	3B		D13-0809-04	GEAR(MOTOR)		
19	3B		D13-0810-04	GEAR(INTERMEDIATE)		
20	3B		D13-0811-04	GEAR(FEED)		
21	1B		D13-0813-04	GEAR(PULLEY)		
22	2B		D15-0296-04	MOTOR PULLEY		
23	1B		D16-0282-04	BELT		
27	1B		E23-0343-04	TERMINAL(SHORT)		
28	2B		E31-7447-05	WIRING HARNESS(WHITE,BLUE)		
29	2B		E31-7448-05	WIRING HARNESS(WHITE,RED)		
30	2B		E31-7449-05	WIRING HARNESS(5P)		
31	3B	*	E31-7450-05	WIRING HARNESS(4P)		
35	1B		F19-1005-04	BLIND PLATE		
38	2B		G01-2385-08	COMPRESSION SPRING(GREEN)		
39	2B		G01-3314-08	COMPRESSION SPRING		
40	1B		G02-0965-04	FLAT SPRING(L)		
41	1B		G02-0927-04	FLAT SPRING(R)		
42	2A		G16-0739-04	SHEET		
43	2A		G16-0744-04	SHEET		
45	1B		G02-0945-14	FLAT SPRING ASSY		

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47	2B		J02-1033-05	INSULATOR		
48	2B		J11-0151-03	CLAMPER		
51	2A		J99-0065-11	TRAY		
52	2A		J99-0067-13	TRAY ASSY		
-			N88-3008-45	FLAT HEAD TAPTITE SCREW		
A			N35-2605-46	BINDING HEAD MACHINE SCREW		
B			N09-1522-05	SET SCREW (3X8)		
C			N39-2025-46	PAN HEAD MACHINE SCREW		
D			N09-2705-05	MACHINE SCREW		
E			N89-2610-46	BINDING HEAD TAPTITE SCREW		
F			N19-1179-05	FLAT WASHER		
G			N89-2608-46	BINDING HEAD TAPTITE SCREW		
55	3B		S33-1022-05	LEVER SWITCH(S1/LIMIT)		
56	2B		S33-2061-05	LEVER SWITCH(S2/OPEN,CLOSE)		
63	2B		T50-1044-04	YOKE		
64	2B		T99-0233-05	MAGNET		
FM	3B		T42-0532-05	FEED MOTOR		
LM	2B		T42-0530-05	LOADING MOTOR		
PU	3B		T25-0011-05	OPTICAL PICKUP HEAD(KSS-210A)		
CD MECHANISM ASS'Y (X92-1400-91) SINGAPORE MADE						
101	1C		A10-2564-01	CHASSIS		S
104	3D		A11-0625-02	SUB CHASSIS		S
114	1D		D10-2324-03	SLIDER		
115	2D		D10-2315-04	ROD		S
116	1D		D13-0807-04	GEAR(INTERMEDIATE)		
117	1D		D13-0808-02	GEAR(MAIN)		
119	2D		D13-0802-08	GEAR(A)		S
120	2D		D13-0803-08	GEAR(B)		S
121	1D		D13-0813-04	GEAR(PULLEY)		
122	2D		D15-0296-04	MOTOR PULLEY		
123	1D		D16-0284-03	BELT		S
124	2D		D40-0951-05	MECHANISM ASSY		S
127	1D		E23-0343-04	TERMINAL(SHORT)		
128	2D		E31-7452-05	WIRING HARNESS(WHITE/BLUE)		S
129	2D		E31-7237-05	WIRING HARNESS(WHITE/RED)		S
130	2D		E31-7453-05	WIRING HARNESS(5P)		S
131	3D		E40-0188-08	CONNECTOR PIN(4P)		S
134	2D		F07-0554-08	GEAR COVER		
135	1D		F19-1015-24	BLIND PLATE		S
136	1D		G02-0945-14	FLAT SPRING ASSY		
138	3D		G01-2394-04	COMPRESSION SPRING(FRONT)		S
139	3D		G01-2395-04	COMPRESSION SPRING(REAR)		S
140	1D		G02-0967-04	FLAT SPRING(L)		
141	1D		G02-0968-04	FLAT SPRING(R)		
142	2C		G16-0743-04	SHEET		S
143	2C		G16-0745-04	SHEET		S
144	2D		J19-3148-08	SHAFT CLAMP		S
145	3D		J25-6135-08	MOTOR PCB		
146	2D		J90-0640-08	SLIDER HOLDER(J)		S
147	3D		J02-1027-15	INSULATOR		S
148	2D		J11-0130-03	CLAMPER		S
150	3D		J42-0175-04	BUSHING		S

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No. 17

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
151	2C		J99-0069-11	TRAY		S
152	2C		J99-0070-13	TRAY ASSY		S
A			N35-2605-46	BINDING HEAD MACHINE SCREW		
B			N09-1522-05	SET SCREW (3X8)		
C			N39-2005-46	PAN HEAD MACHINE SCREW		
D			N89-2608-46	BINDING HEAD TAPTITE SCREW		S
E			N09-2670-08	SCREW		
F			N09-2671-08	SCREW		S
G			N89-2606-46	BINDING HEAD TAPTITE SCREW		
H			N19-1217-04	FLAT WASHER		S
155	3D		S46-1128-08	LEAF SWITCH(S1/LIMIT)		
156	2D		S33-2061-05	LEVER SWITCH(S2/OPEN,CLOSE)		
163	2D		T50-1046-04	YOKE		S
164	2D		T99-0233-05	MAGNET		
DM	2D		T42-0528-08	DISC MOTOR		S
FM	3D	*	T42-0527-08	FEED MOTOR		
LM	2D		T42-0530-05	DC MOTOR		
PU	2D		T25-0011-05	OPTICAL PICKUP HEAD(KSS-210A)		
DECK MECHANISM ASS'Y (D40-0970X-XX)						
301	1E		A11-0610-08	SUB CHASSIS ASSY		
302	1F		D01-0108-08	FLYWHEEL ASSY (RE)		
303	1F		D01-0209-08	FLYWHEEL ASSY (LF)		
305	2F		D10-2294-08	LEVER (RV)		
306	2F		D10-2300-08	ARM ASSY (TR)		
309	1F		D10-2290-08	LEVER (FR)		
310	2E		D10-2295-08	ARM (EJECT LOCK)		B
311	2F		D10-2296-08	ARM (SELECT)		
312	2E		D10-2297-08	ARM (PLAY)		
313	2E		D10-2298-08	ARM (RV)		
314	2E		D10-2291-08	LEVER (RV)		
315	1E		D10-2301-08	ARM ASSY		
316	2F		D10-2302-08	ARM ASSY (FR)		
317	3F		D10-2303-08	ARM ASSY		
318	2E		D10-2304-08	ARM (EJECT LOCK)		A
319	3F		D13-0789-08	GEAR (FR)		
320	2F		D13-0790-08	GEAR (REW)		
321	2F		D13-0791-08	GEAR (FR)		
322	2F		D13-0792-08	GEAR (PL CAM)		
323	2E		D13-0793-08	GEAR (PLAY)		
324	1F		D13-0794-08	GEAR (FW)		
325	2E		D14-0297-08	PINCH ROLLER ASSY(R)		
326	1E		D14-0298-08	PINCH ROLLER ASSY(L)		
329	1F		D19-0255-08	CLUTCH ASSY		
330	1E		D19-0256-08	SHAFT (HUB)		
331	2E		D23-0244-08	RETAINER (R)		
332	2E		D23-0245-08	RETAINER (L)		
333	2F		D30-0023-08	BRAKE		
334	1E		D40-0849-08	MACHANISM ASSY (HEAD ASSY)		B
334	1E		D40-0850-08	MACHANISM ASSY (HEAD ASSY)		A
BM	1F		D16-0200-08	BELT (DRIVE)		
BR	1F		D16-0271-08	BELT (CLUTCH)		

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No. 18

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337	1E	*	E35-0088-08	WIRING HARNESS (P/RHEAD)		B
339	1E	*	E35-0087-08	WIRING HARNESS (PB HEAD)		A
341	1E		G01-2348-08	COMPRESSION SPRING (REEL)		
342	1E		G01-2349-08	COMPRESSION SPRING		
343	2F		G01-2350-08	EXTENSION SPRING		
344	1F		G01-2351-08	EXTENSION SPRING		
345	2F		G01-2352-08	EXTENSION SPRING		
346	2E		G01-2353-08	EXTENSION SPRING		
347	1E		G01-2354-08	EXTENSION SPRING		
348	2F		G01-2355-08	TORSION COIL SPRING		
349	1F		G01-2356-08	TORSION COIL SPRING (BRAKE)		
350	3F		G01-2357-08	TORSION COIL SPRING		
351	2E		G01-2358-08	TORSION COIL SPRING		
352	2E		G01-2359-08	TORSION COIL SPRING		
353	2E		G01-2360-08	TORSION COIL SPRING		
354	2E		G01-2361-08	TORSION COIL SPRING		
355	2E		G01-2362-08	TORSION COIL SPRING		
356	2E		G01-2363-08	TORSION COIL SPRING		
357	2E		G01-2364-08	TORSION COIL SPRING		B
359	2E		G01-2366-08	TORSION COIL SPRING		A
360	1E		G02-0913-08	FLAT SPRING		
361	2E		G16-0727-08	SHEET		
363	1F		J19-3130-08	HOLDER (MOTOR)		
364	1E		J19-3131-08	HOLDER		
365	1F		J19-3132-08	LEAD HOLDER		
366	2F		J19-3133-08	HOLDER ASSY		
367	2E		J21-5310-08	MOUNTING HARDWARE		
368	1F		J25-6085-08	PRINTED WIRING BOARD (SW)		
370	2E		J31-0824-08	COLLAR		B
371	2E		J31-0825-08	COLLAR		A
372	1E		J90-0631-08	GUIDE (R)		
373	1E		J90-0632-08	GUIDE (L)		
374	2E		J90-0633-08	GUIDE (CASSETTE)		
378	3F		T94-0215-08	SOLENOIDE COIL		
MM	1F		T42-0564-08	DC MOTOR ASSY		
PH	1E		T31-0054-08	PLAYBACK HEAD		A
RPH	1E		T39-0008-08	REC/PB/HEAD		B
379	1E		D03-0276-08	REEL DISK ASSY		
380	2F		D10-2299-08	ARM (FR)		
381	1F		S46-1125-08	LEAF SWITCH (REC)		
383	1F		S46-1127-08	LEAF SWITCH		
386	1E		N19-1031-08	FLAT WASHER		
387	2E		N19-1198-08	FLAT WASHER		
389	2E,1F		N19-1244-08	FLAT WASHER		
390	2E,1F		N19-1243-08	FLAT WASHER		
391	2F		N19-1202-08	FLAT WASHER		
392	2E		N19-1242-08	FLAT WASHER		
393	2E		N19-1245-08	FLAT WASHER		
396	1E		N29-0207-04	E RING		
399	1F		NJL5765K(A,B)	OPTO ISOLATOR		
A			N09-1496-08	MACHINE SCREW		
B			N09-1497-08	MACHINE SCREW		
C			N09-2661-08	MACHINE SCREW		
D			N09-2653-08	MACHINE SCREW		

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No. 19

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E			N09-2654-08	MACHINE SCREW		
F			N09-2655-08	MACHINE SCREW		
G			N09-2656-08	MACHINE SCREW		
H			N09-2657-08	MACHINE SCREW		
J			N09-2658-08	MACHINE SCREW		
K			N09-2659-08	MACHINE SCREW		
L			N09-2660-08	MACHINE SCREW		
M			N09-2662-08	MACHINE SCREW (HEAD)		

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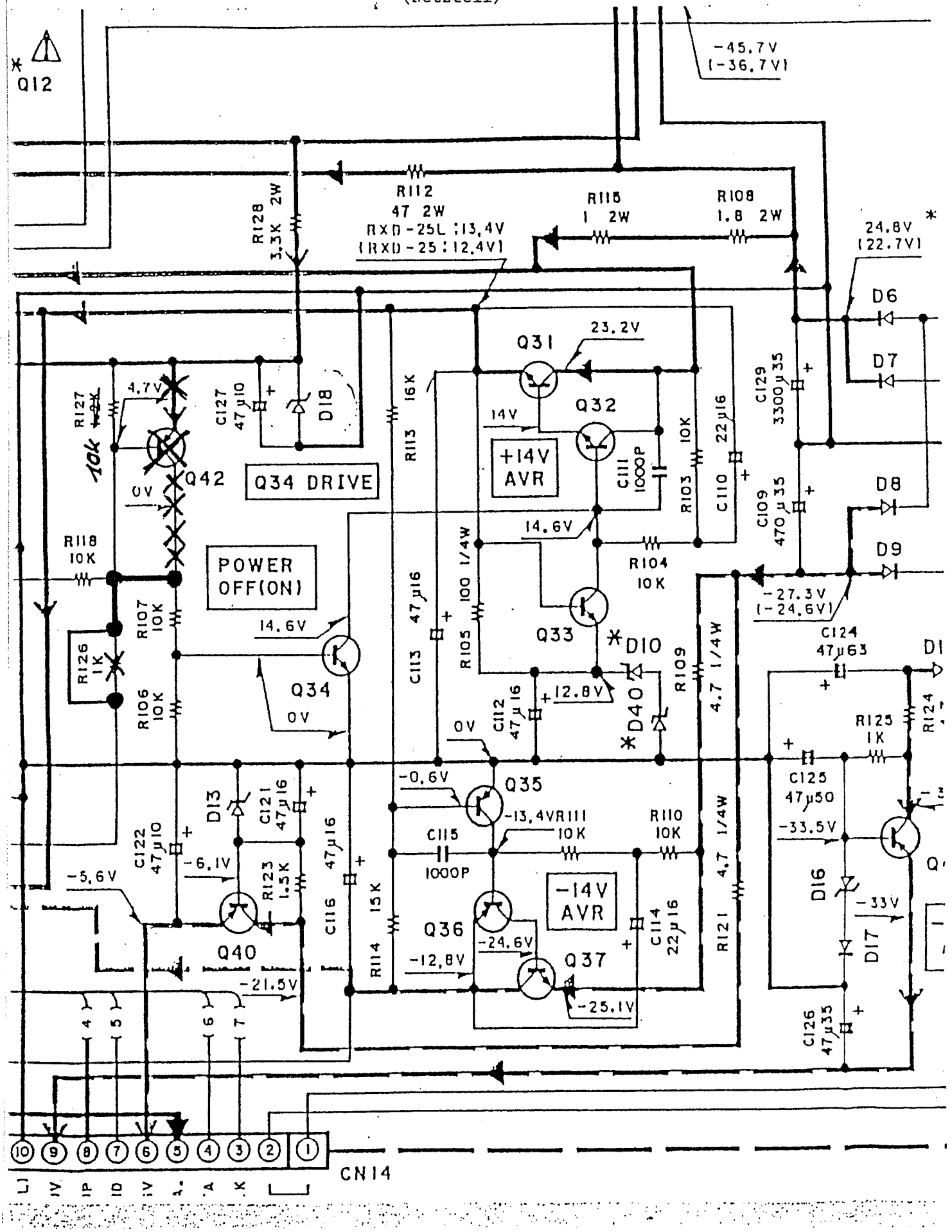
MODIFIKATION für RXD-25L
(Netzteil)



RXD-25/25L

SPECIFICATIONS

Amplifier section

(M-25)
Continuous power output
DIN at 1 kHz 8 Ω ..... 35W + 35W
IEC/NF at 8 Ω ..... 35W + 35W
Total harmonic distortion at 1/2 rated power 0.09%

(M-252)
Continuous power output
IHF '66 from 40 Hz to 20 kHz,
0.09% T.H.D. at 6 Ω ..... 35W + 35W
EIAJ maximum useful power
output at 6 Ω ..... 50W + 50W
Total harmonic distortion at 1/2 rated power.0.09%

(M-25/252)
Signal to noise ratio
PHONO (MM) 66dB
CD, TUNER, TAPE 88dB
Input sensitivity/Impedance
PHONO (MM) ..... 2.5mV/47 kΩ

Graphic equalizer section

Graphic equalizer controls
60 Hz, 150 Hz, 400 Hz,
1 kHz, 2.4kHz, 6 kHz, 15 kHz ..... ±10dB

Tuner section

(M-25)
FM section
Tuning frequency range 87.5 MHz-108MHz
Usable sensitivity
(DIN at 75 Ω) 0.8μV
Total harmonic distortion (at 1 kHz, 65.2 dBf input)
MONO 40 kHz DEV 1 kHz 0.3%
Signal to noise ratio
(DIN weighted at 1 kHz, 65.2 dBf input)
MONO 70dB
Stereo separation at 1 kHz 40dB
Frequency response (30 Hz to 15 kHz) ..... +0.5 dB
−2.5 dB

MW section
Tuning frequency range ..... 531 kHz~1,602 kHz
Usable sensitivity ..... 14μV/(500μV/m)

LW section
Tuning frequency range ..... 153 kHz~281 kHz
Usable sensitivity ..... 20μV/(1,000μV/m)

(M-252)
FM section
Tuning frequency range ..... 87.5 MHz~108 MHz
Usable sensitivity (IHF at 300 Ω) ..... 1.8μV/10.2 dBf
Total harmonic distortion (at 1 kHz, 65.2 dBf input)
MONO 0.3%
Signal to noise ratio (at 1 kHz, 65.2 dBf input)
MONO 78dB
Stereo separation (at 1 kHz) 40dB
Frequency response
(30 Hz to 15 kHz) ..... + 0.5 dB, −3.5 dB

AM section
Tuning frequency range
9 kHz step ..... 531 kHz~1,602 kHz
10 kHz step ..... 530~1,610 kHz
Usable sensitivity ..... 14μV/(500μV/m)

Cassette Deck section

Type ..... 4 track 2 channel stereo
Heads
Playback/Record head (Deck B) 1
Playback head (Deck A) 1
Erasing head (Deck B) 1
Motors ..... 1 (each deck)
Fast winding time
(Deck A) ..... Approx. 100 seconds with C-60 tape
Frequency response (Deck B)
Normal tape ..... 30 Hz to 16,000 Hz±3 dB
CrO_2 tape ..... 30Hz to 17,000 Hz±3 dB
Signal to noise ratio
DOLBY NR ON ..... 64 dB (Normal tape)
DOLBY NR OFF ..... 54 dB (Normal tape)
Wow and flutter ..... 0.08% (W.R.M.S.)

CD player section

Rotational speed ..... about 200 to 500 rpm (CLV)
D/A conversion format ..... 16 bit linear
Over sampling ..... 2fs (88.2 kHz)
Signal to noise ratio (EIAJ) ..... more than 90 dB
Dynamic range (EIAJ) ..... more than 90 dB

General

Power consumption (IEC) ..... 150 W
Dimension ..... W: 360 mm (14-3/16")
H : 450 mm (17-11/16")
D : 312 mm (12-5/16")
Weight (net) ..... 10 kg (22.0 lb)

Note:
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the general market (M) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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